The OIL WEEKLY

A Journal for Oil and Gas Producers and Field Men

July 17, 1925

10 Cents A Copy

A horseshoe nailed to the 13th cross-timber of your derrick won't bring half as much luck as a full set of Harrisburg Couplings on your drill pipe.

Harrisburg Couplings bring "good luck" by eliminating the "bad luck" so common to users of ordinary couplings.

Forged seamless from special oil field steel! No weld—No weakness! Absolute uniformity in size, temper, thread and taper!

No wonder they are better couplings! And no wonder Harrisburg users swear by them.

Stocked and sold by leading supply houses

HARRISBURG PIPE & PIPE BENDING CO.
Harrisburg, Pa.

Distributors:
Harrisburg Pipe and Pipe Bending Co. of Texas, Inc.,
Houston, Texas.
Harrisburg Supply Co., Tulsa, Okla.

HARRISBURG

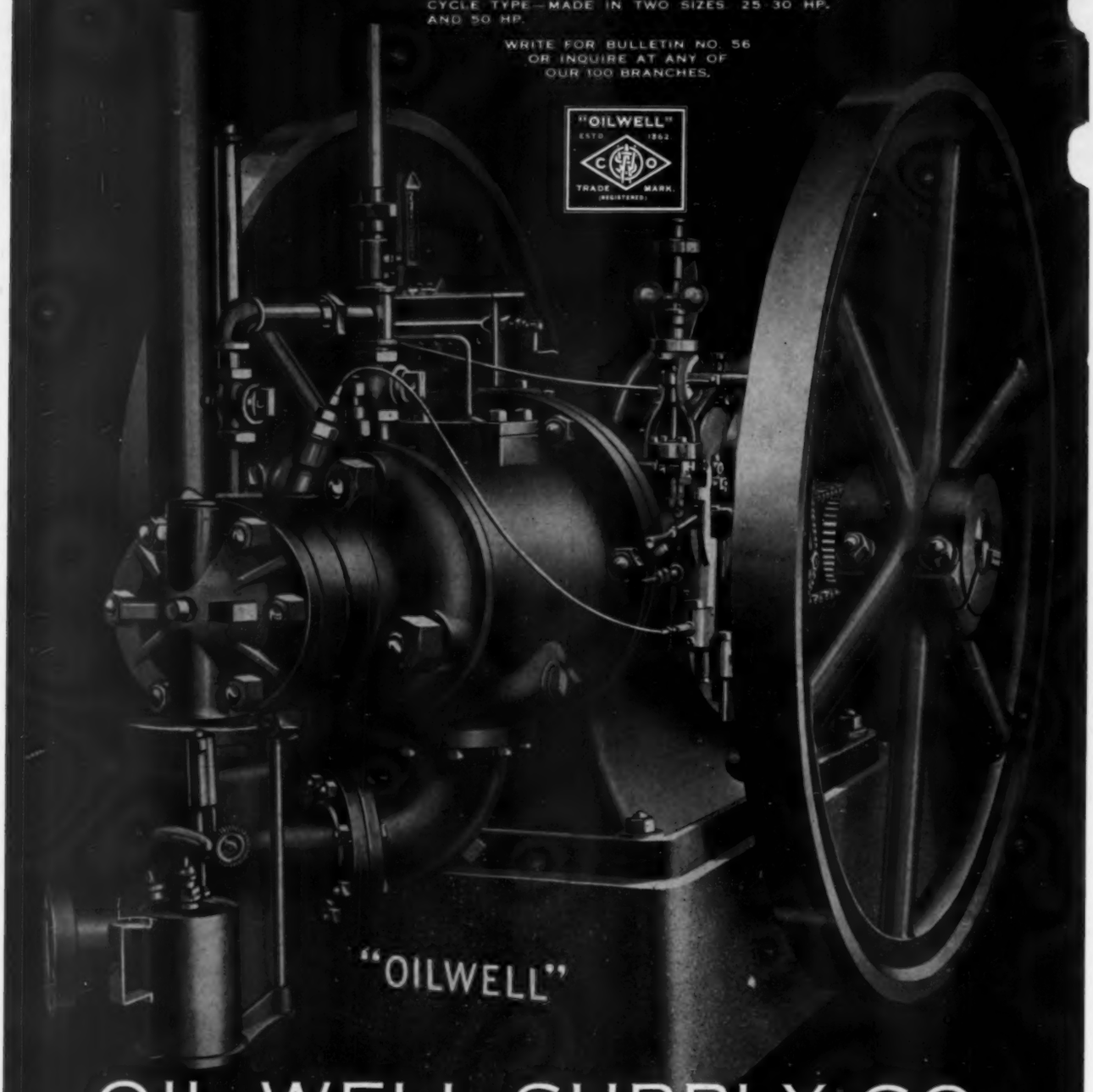
FORGED SEAMLESS STEEL COUPLINGS

"OILWELL"
HEAVY DUTY OIL ENGINES

THE ALMOST BRUTE CONSTRUCTION AND THE EVER READY PERFORMANCE OF "OILWELL" HEAVY DUTY OIL ENGINES MAKES THEM HIGHLY DESIRABLE FOR THE GRUELLING SERVICE ENCOUNTERED IN THE OIL FIELDS. THE FACT THAT THEY WILL RUN ON CRUDE OR FUEL OIL IS ANOTHER RECOMMENDATION BECAUSE THE FUEL IS RIGHT ON THE JOB. THEY ARE OF THE TWO CYCLE TYPE—MADE IN TWO SIZES 25 30 HP. AND 50 HP.

WRITE FOR BULLETIN NO. 56
OR INQUIRE AT ANY OF
OUR 100 BRANCHES.

"OILWELL"
ESTD 1862
TRADE MARK.
(REGISTERED)



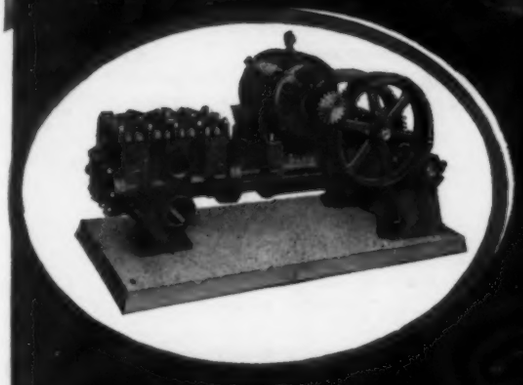
OIL WELL SUPPLY CO.

NEW YORK LONDON TAMPICO PITTSBURGH, U.S.A. SAN FRANCISCO LOS ANGELES

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

THE OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 1716 Dallas Ave., Houston, Texas. Subscription price $1.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

HEADQUARTERS for Motorized Pumps



The growing trend toward electrification of pumping equipment is reflected in the constantly increasing demand for Gaso Motorized Pumps. The Midwest Refining Co., Manhattan Pipe Line Co., Humble Pipe Line Co., Mutual Oil Co., Shaffer Oil & Refining Co. and Pierce Petroleum Co. are a few of those we have recently served in this connection. Having made a thorough study of motor-driven pumps, we know the conditions that have to be met.

Write for prices and details of electrically operated pump equipment.

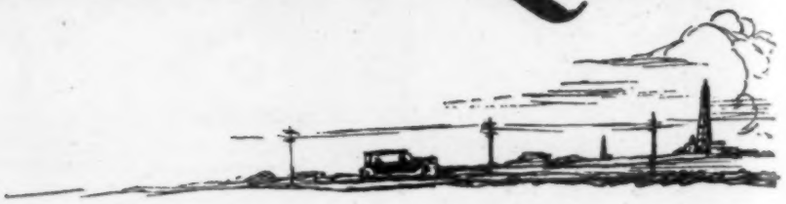
GASO PUMP & BURNER MFG. CO. • *Tulsa, Okla.*

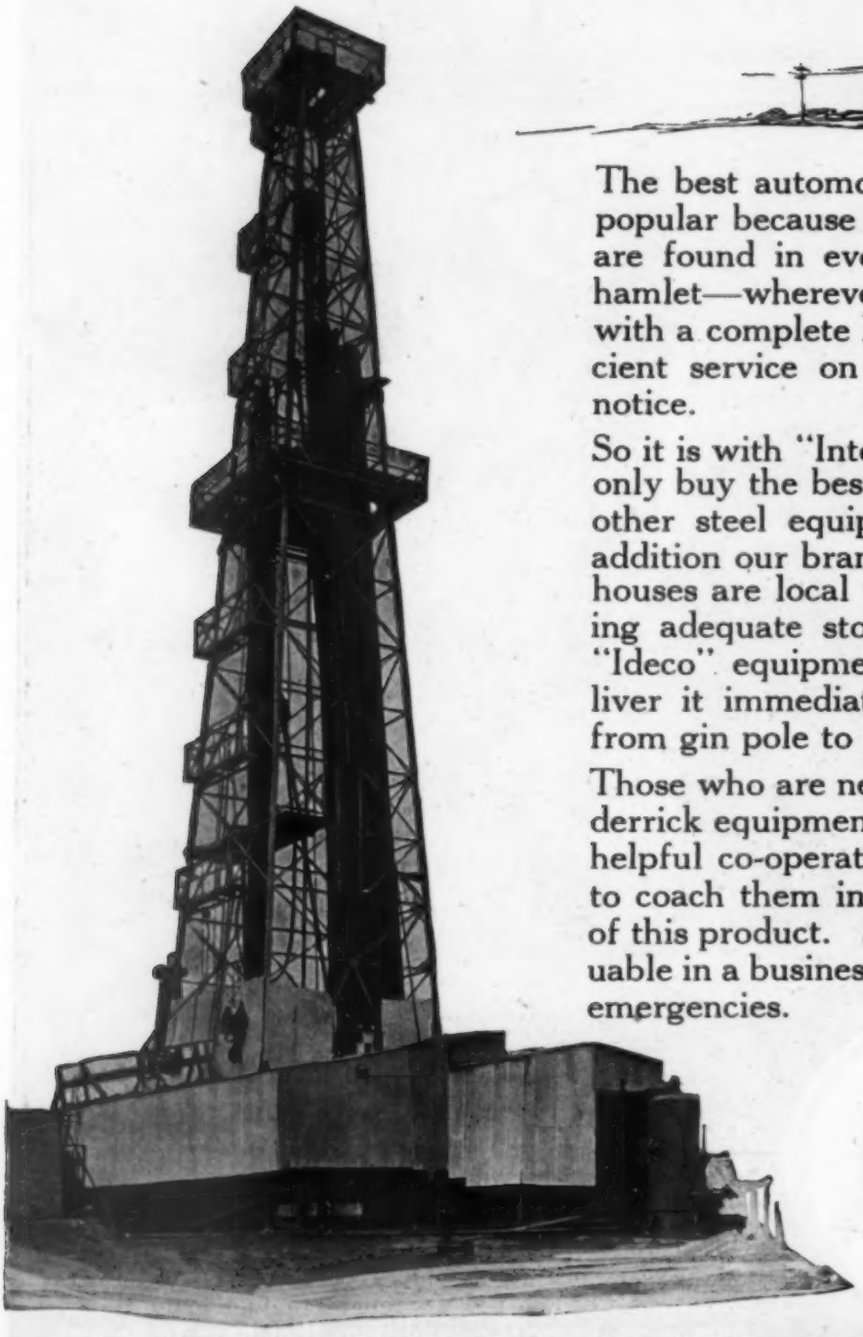
GASO PUMPS

for every oil industry need

Say you saw it in The Oil Weekly

The IDECO Line





The best automobiles are universally popular because their service stations are found in every city, village and hamlet—wherever you drive a car—with a complete line of parts and efficient service on tap at a moment's notice.

So it is with "International." You not only buy the best steel derrick, rig or other steel equipment made, but in addition our branch offices and warehouses are local to your fields, carrying adequate stocks of International "Ideco" equipment and ready to deliver it immediately—rig or parts—from gin pole to engine house.

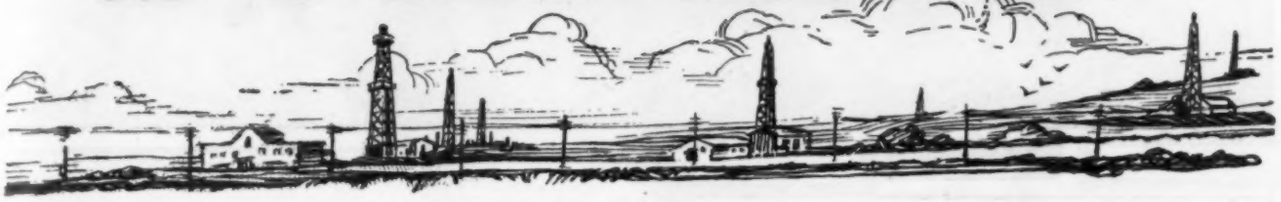
Those who are new to the use of steel derrick equipment can count upon the helpful co-operation of our field men to coach them in the speedy erection of this product. Such service is invaluable in a business of such unexpected emergencies.

"Ideco" Galvanized Steel Derrick in Service

INTERNATIONAL STEEL IDECO DERRICKS (GALVANIZED)

Say you saw it in The Oil Weekly

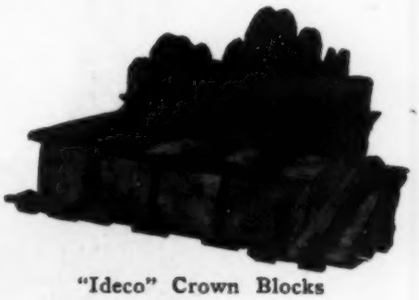
is COMPLETE!



Every piece of "Ideco" equipment incorporates the combined knowledge of veteran oil men and long-experienced steel fabricators. Men in the field know the designs are most suited to their requirements. Those in the factory know exactly what is expected of their products and build accordingly.

Crown Block, Bull Wheels, Walking Beams, Pitmans or Portable Houses of galvanized steel reach the field "ready for work." And they stay on the job longer than most drillers hope to live!

Get a line on the International "Ideco" line from the nearest branch office. Write, wire, or phone for an intelligent representative.



"Ideco" Crown Blocks

"Ideco" Steel Calf Wheel

"Ideco" Steel Band Wheel

The International Derrick & Equipment Co.

Columbus, Ohio **Los Angeles, Cal**

Branches in

Tulsa	Smackover
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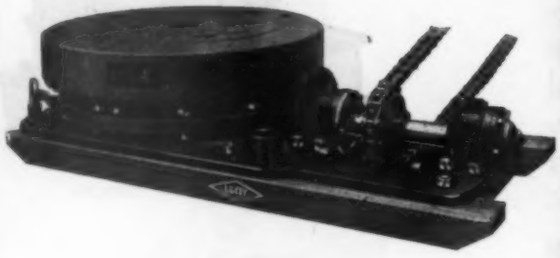
The largest company devoted exclusively to the manufacture of steel (galvanized) equipment for the oil, gas and artesian industries

"Ideco" Galvanized Steel Frame Building

INTERNATIONAL STEEL IDECO DERRICKS (GALVANIZED)

LUCEY ROTARY

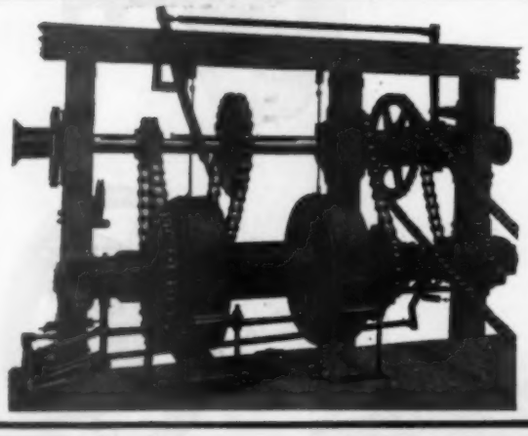


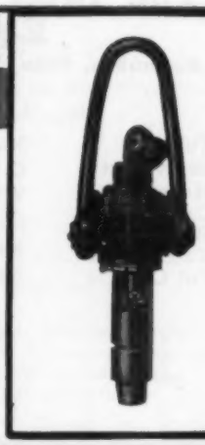
WHEREVER

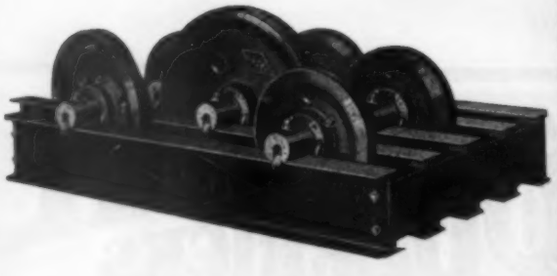
THE NAME LUC GUARAN

The Lucey equipment featured on these two pages marks a real advance in the design and construction of rotary outfits.

Lucey Engineers,—men with years of experience in designing and building oil field machinery have more than kept pace with modern drilling methods, and have re-designed and constantly improved their products until today they are regarded as the standard of rotary construction wherever oil is drilled.







LUCEY MANUFACTU

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CHATTANO

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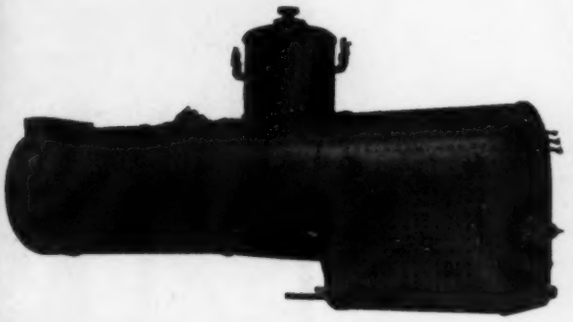
Say you saw it in The Oil Weekly

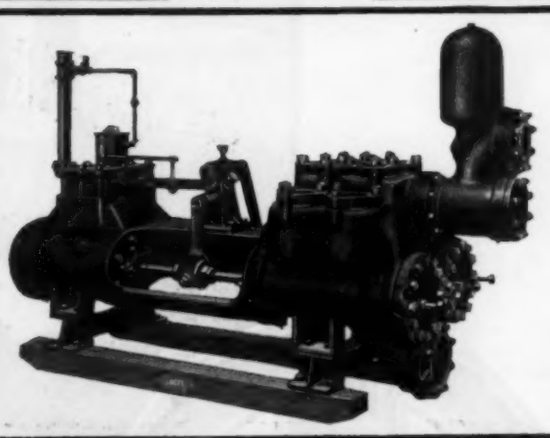
DRILLING OUTFITS

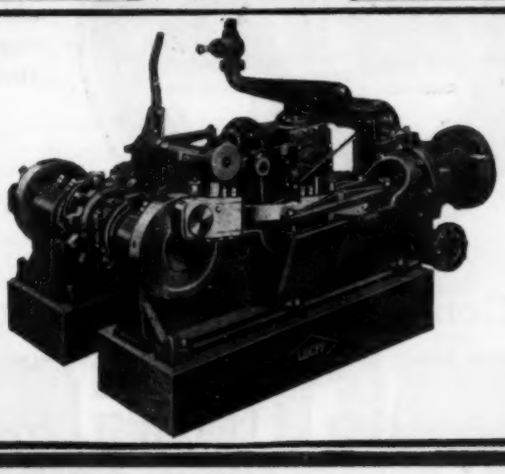
EY THERE'S OIL



All Lucey equipment is "built in the shops that developed the Rotary" and is carefully inspected and tested before shipment.

Before you buy any Rotary Machinery investigate the advantages of the Lucey design, —compare the performance of the Lucey Equipment with other similar machinery,— then decide.





RING CORPORATION
AND PLANT
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"Branches in all active Oil Fields."

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Westcott Orifice Meters are accurate and durable wherever installed. Thirty-seven years of successful meter making is a guarantee to our customers.

WESTCOTT & GREIS
Sales Service
Dallas TULSA Los Angeles
Shreveport

The above illustration is a type "C" Westcott Orifice Meter flange connection, on a well known oil company's lease near Cromwell, Oklahoma.

General Offices and Factory: Erie, Pennsylvania, U. S. A.

METRIC METAL WORKS

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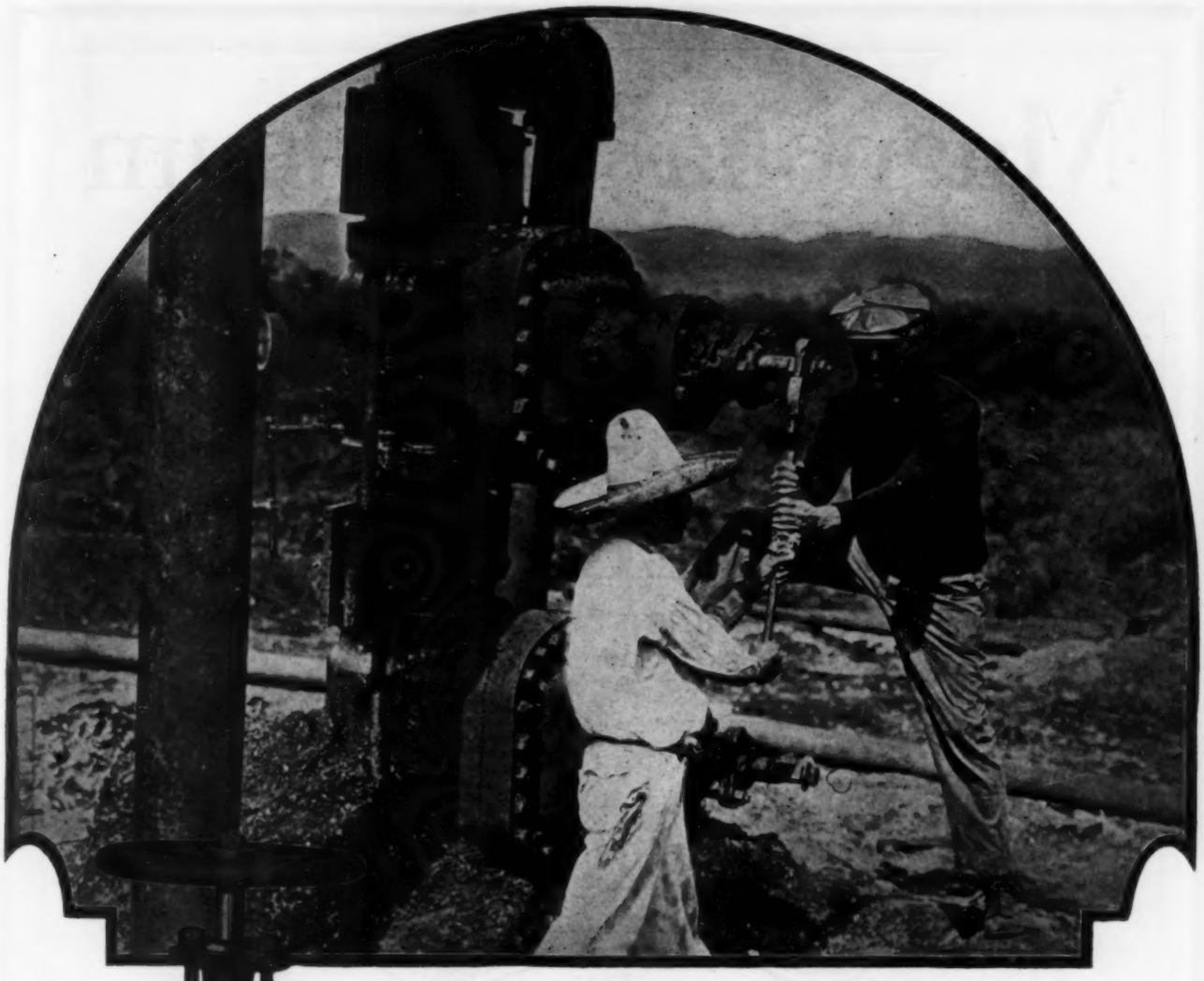

Darling Parallel Seat Gate Valves are famous in oil and gas fields for their simplicity, their long wearing qualities, and ease of operation. While users will tell you they seldom need to touch a Darling, it is worth while to know they are most easily repaired in the field.

Holdin' in a Big One

The field boss for this outfit down in Mexico figured he was drilling into a "keg of dynamite"; so when things cut loose he was ready with a couple of Darling heavy-duty valves which he was POSITIVE would hold her in till hell froze over. And—hold they did!

Gas with a thousand pounds pressure behind it is about as gentle as a cyclone, and requires a valve that will not only withstand the terrific pressure, but one which will CONTROL the flow at the will of the operator. Old timers, who have had plenty of experience with gushers, will tell you they had the best luck with Darlings.

DARLING VALVE & MANUFACTURING CO.

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DARLING
GATE VALVES

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DEPENDABLE LUBRICANT

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For satisfactory operation of Ford Cars use Magnolene Ford Oil

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Inquiries Respectfully Solicited

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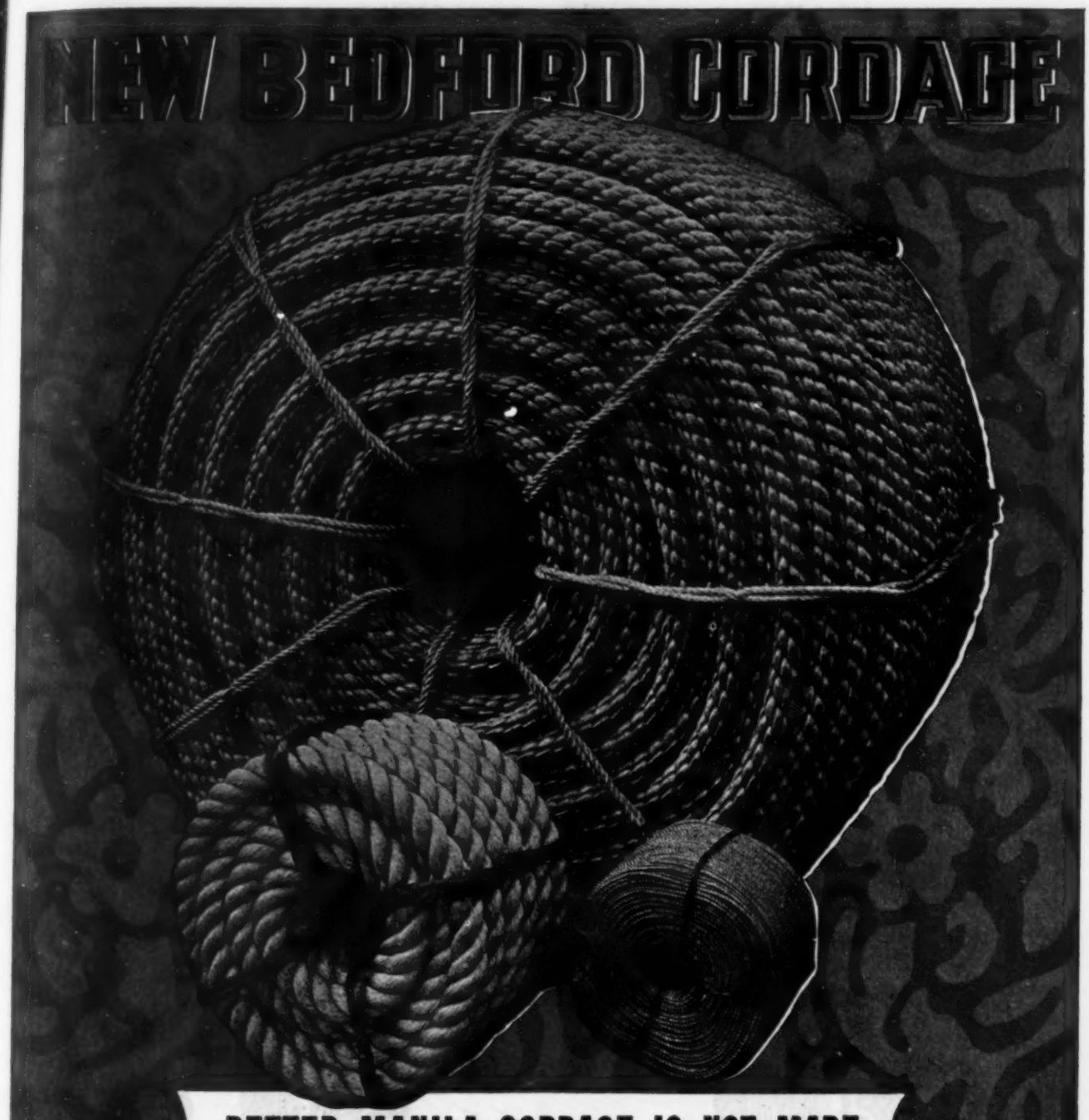
NEW BEDFORD CORDAGE



BETTER MANILA CORDAGE IS NOT MADE

Every coil is guaranteed to be long fiber pure manila. New Bedford Drilling Cables, Plain Laid Ropes, Bull Ropes and Torpedo Lines will be found by actual tests in strength, size, weight, and wearing qualities, to represent the acme of economy.

"If CONTINENTAL Sells It There Is No Better"

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CONTINENTAL

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Made by the American Cable Co.

100% UNIFORM

The weak spot in a rope, like the weak link in a chain, is the point on which the strength of the whole depends.

This famous brand—used in many of the world's most celebrated drilling jobs—has no weak spots. That is why we carry it in stock at our stores—why we earnestly recommend that you give it a trial.

Put it to the test in your own work. Compare it point by point with others, and we will gladly abide by the result.

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"Everything Used or Needed About an Oil or Gas Lease"

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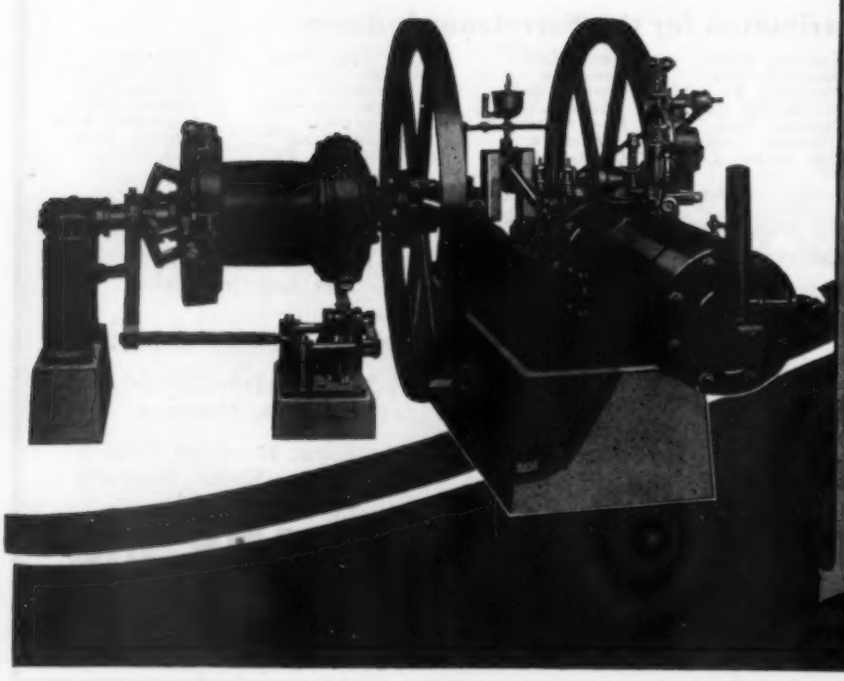
WICKWIRE SPENCER STEEL COMPANY, Inc.

41 East Forty-second Street

NEW YORK CITY

"PATTIN" REVERSE GEAR ENGINES

"PATTIN" PRODUCTS PLEASE



The most improved Two Cycle Gas Engine for drilling, cleaning and pumping on the market—is the unanimous opinion of every oil field man who has investigated and witnessed the new Pattin Reverse Gear Engine in operation.

It's ability to develop from 30 to 60% more than its rated H. P.; its exclusive built in By-Pass Valve that eliminates extra valves and piping; its improved fly ball governors; its shaft bearings fitted with chain and ring oilers —are all features of the new Pattin that appeal strongly to operator and driller alike.

Install a PATTIN and compare results—we'll abide by your findings.

Bulletin 30 gives complete specifications and construction details.

PATTIN BROTHERS CO.

Marietta, Ohio

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The Only Rock Bit

with

Unequalled Speed

Reed Roller Bit Co.

New York

Arc welded tanks are safest

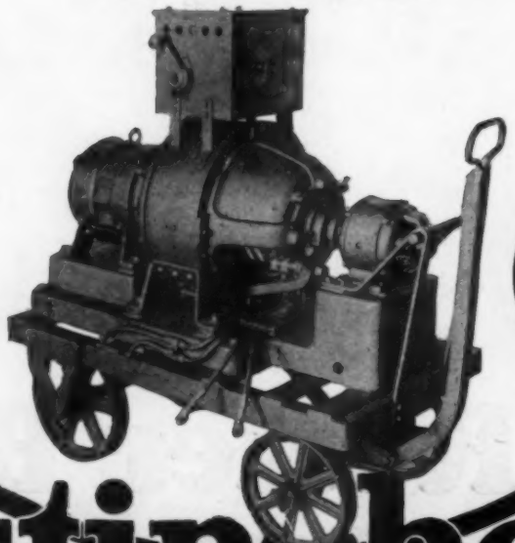
PETROLEUM Engineers' Committees have concluded that vapor-proof, all steel tanks with vents properly screened provide maximum protection of the tank contents from lightning.

Arc Welded tanks are vapor tight.

Sturdy mechanical construction, ease of striking and maintaining the arc and the general reliability of the Westinghouse Portable Arc Welding Outfit are some of the reasons why it is preferred for this work.

Multiple and single-operator stationary sets in all sizes from 200 ampere to 1000 ampere capacity are also available.

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal Cities of
the United States and Foreign Countries



W
WESTINGHOUSE ELECTRIC

Westinghouse

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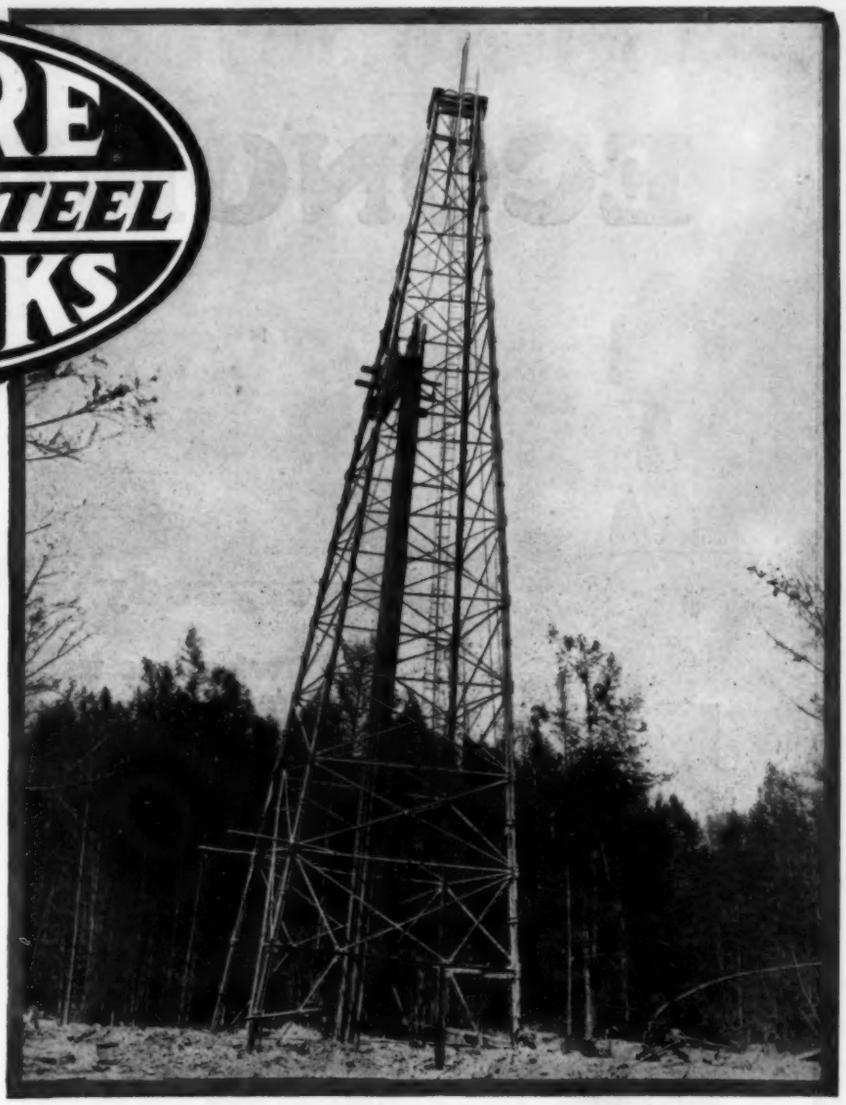
MOORE
TUBULAR STEEL
DERRICKS



Cave-in or Cratering of ground under derrick caused the foundation to sink, tipping derrick as shown. Norphlet, Smackover Field, Ark.

Defying Disaster on Hell's Half Acre

AFTER drilling into the deep sand at Norphlet, Smackover field, Arkansas, the flow of gas and water formed a crater under this derrick, which made the foundation sink into the ground, tipping the derrick over at a perilous angle. A similar fate overtook the same operators, on the same half acre of ground, after successfully drilling into the deep sand with a twin brother of this derrick. To the astonishment of the owners, who had witnessed other derricks under similar circumstances being reduced to worthless heaps of wreckage, these two Moore derricks stood the strain and were, with very little loss, salvaged for use elsewhere.

An army of over 300 Moore derricks are already in use in the Smackover field, and more are being added daily. Through every emergency in the spectacular new developments in this field, the Moore derricks have fully justified the confidence placed in them by their owners.

LEE C. MOORE & CO., Inc.
Pittsburgh, Pa.
Established 1907

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DALLAS, TEXAS Magnolia Building
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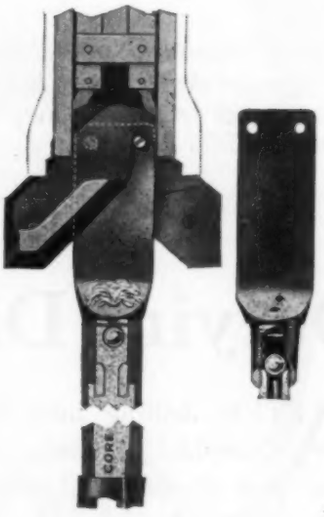
ECONOMICAL

Everybody

who has used The Standard Collapsible Rotary Drill and Core Barrel emphatically states that drilling costs have been lessened from 25 to 40 percent . . .



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O. M. CARTER

W. T. HILTPOLD, Sales Agent . . . 206-7-8 Scanlan Bldg., HOUSTON, TEXAS

Cut Evaporation Loss Reduce Fire Hazard

With This New Improved OCECO Gauge Hatch

Made in all sizes and for all roof pitches

YOU'LL profit by installing these new, improved OCECO Gauge and Thief Hatches on YOUR tanks—

1—By their saving valuable gasoline vapors. These fittings are gas-tight *without* trouble-inviting liquid seals or gaskets. Also water-tight.

2—By their protection against fire through cutting off all escape vapors. Also by spark-proof construction with no danger of sparks as *self-closing* cover drops back into place.

3—By their good service and long life through superior construction.

Only in the OCECO can you get all these money-saving advantages. Let us quote you on your requirements.

Other OCECO Products

Roof Manheads, Safety Tank Winches, Cable Sheave Brackets, Steel Nozzles, Swing Joints, Breather Valves, Flame Arrestors, Oil Still Safety Valves, Automatic Tar Plugs, Fire Extinguishers.

The Oil Conservation Engineering Co.

Headquarters for Tank Equipment
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318 East 12th Street	Los Angeles, Cal.
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W. K. Henderson Co.,	Shreveport, La.

Beaumont Export and Import Co., Beaumont, Texas, and Tampico, Mexico

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SAVES EVAPORATION AND PREVENTS FIRE

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Rope Socket

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Rope Socket

Drilling Jars

BITS ROPE SOCKETS JARS

OUR DRILLING TOOLS, LIKE OTHER ACME PRODUCTS, ARE WELL MADE OF CAREFULLY SELECTED MATERIAL AND WILL GIVE A MAXIMUM OF SATISFACTORY SERVICE.

"ALWAYS SPECIFY ACME"

ACME FISHING TOOL COMPANY

PARKERSBURG, WEST VIRGINIA

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Acme Fishing Tool Company of Texas, Vernon, Texas
Brown Welding and Machine Company, Breckenridge, Texas
Wooster Tool and Supply Company, Wooster, Ohio
Logan Foundry and Machine Company, Logan, Ohio
Elms Brothers and Company, Waynesburg, Pennsylvania
Midland Iron Works, Billings, Montana
Brown Welding and Machine Company, Woodson, Texas

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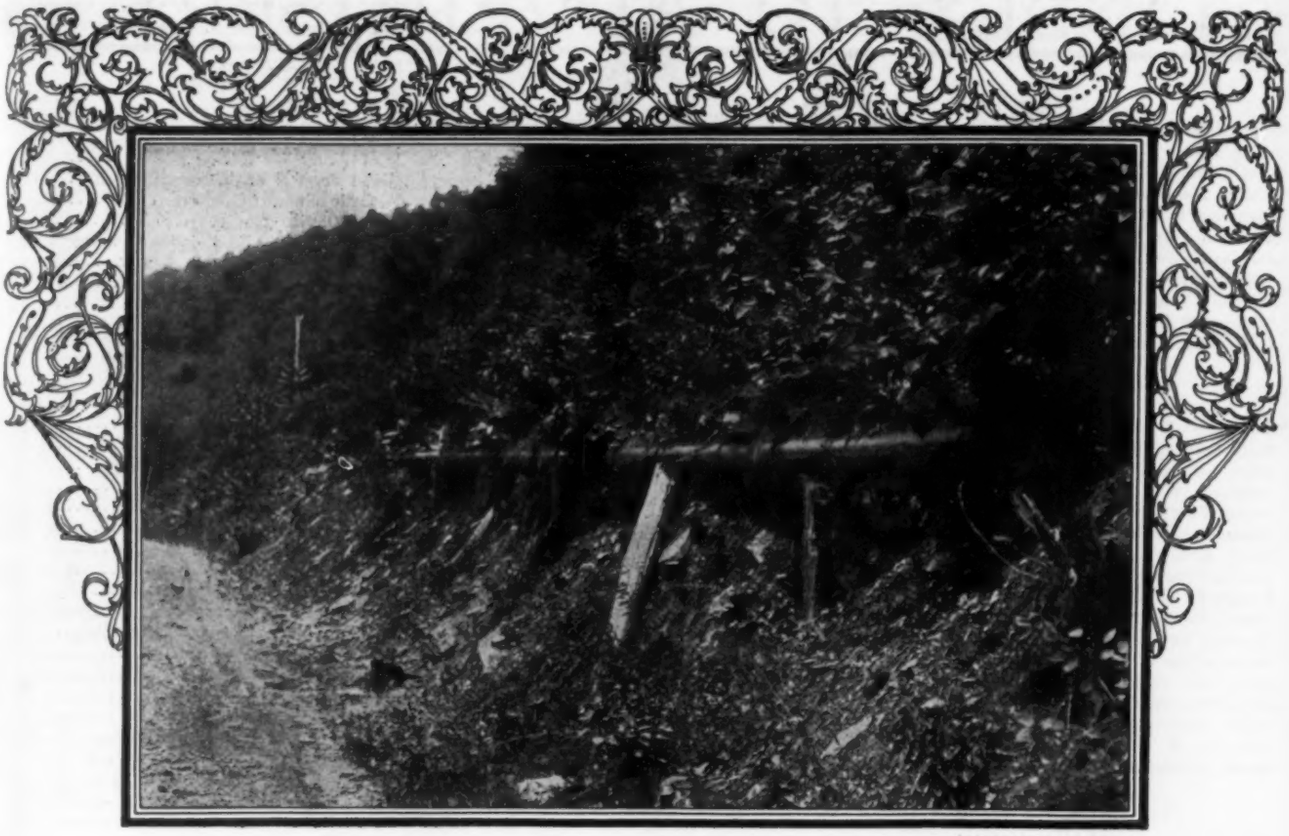

Here is pipe that was laid in 1879

A SIX-INCH main line of Reading Wrought Iron Pipe was laid from Bradford, Pa., to Marcus Hook, Pa., in 1879 by the Tidewater Pipe Line Co. At certain points along the line the banks washed away and the pipe was allowed to sag.

In spite of the 46 years of hard service this pipe has seen, it is still in good condition today. All indications are it will give many more years of efficient service.

This is only one of many similar stories which convincingly demonstrate the enduring qualities of Reading Pipe. Every day, men in the oil field are finding that Reading resists corrosion far better than the best steel pipe.

Its long life makes the ultimate cost so low that you can't afford to use any other kind.

Make it a point to look for "Reading" on the next pipe you order.

It is your guarantee for 100 per cent genuine wrought iron pipe. *Write for our bulletins on pipe.*

READING IRON COMPANY, Reading, Pa.

World's Largest Manufacturers of Genuine Wrought Iron Pipe

OIL WELL SUPPLY COMPANY, Distributors

Inquire at any of their 100 branches

READING PIPE

GENUINE WROUGHT IRON

Say you saw it in The Oil Weekly

INDEX TO ADVERTISERS

A

Acme Fishing Tool Company 20
Adler, Joseph L. 81
Ajax Iron Works .... *
Albany Manufacturing Company .... *
Allen and Courtney .... *
American Pipe Bending Machine Company.. *
American Steel Wire Company .... *
American Tank Company 78
American Telephone & Telegraph Company.. *
Atkinson & Sandefer .... *
Axelson Machine Company .... *

B

Baash-Ross Tool Company 69
Baird Supply Company .... *
Baker Casing Shoe Company .... *
Barnickel, Wm. S., Company 80
Becker Specialty Company 73
Bessemer Gas Engine Company .... *
Black, Sivalls & Bryson, Inc. 39
Bradford Rig and Reel Company 44
Bridgeport Machine Company .... *
Brown Welding & Machine Company 49
Brownell Company 76
Buckeye Traction Ditcher Company .... *
Burns Tool Company .... *
Bruce-MacBeth Engine Company .... *
Butler Manufacturing Company .... *
Byers, A. M., Company .... *
Byron Jackson Pump Company .... *

C

Cameron Iron Works .... *
Carter, O. M. 18
Central Steel Company .... *
Clark Bros. Company .... *
Clark Machine Company .... *
Climax Engineering Company 77
Columbus Sucker Rod Company, The.... *
Continental Supply Company 11
Crain Ready-Cut House Company .... *
Cunningham Company 40
Cypress Tank Company 80

D

D. & B. Pump & Supply Company 71
Darling Valve Manufacturing Company 9
De La Vergne Machine Company .... *
Deep Well Engineering Company .... *
Donoghue, David .... *
Dunn Manufacturing Company 35

E

Eagle Picher Lead Company .... *
Eastern Torpedo of Ohio 66
Elliott Core Drilling Company 73
Emsco Tool Company .... *
Everett, R. B. & Company 45

F

Fawcett, A. W. .... *
Federal Supply Company .... *
Fetty, C. C. & Company .... *
Fort Worth Laboratories 81
Foster & Reiter 72
Franklin Valveless Engine Company ....Inside back cover
Frick-Reid Supply Company 41

G

Gaso Pump & Burner Mfg. Company 3
Gardner Governor Company .... *
General American Tank Car Corporation....90
General Electric Company .... *
Gott, H. P. Manufacturing Company 76
Gould Burner Company 73
Goulds Manufacturing Company .... *
Greenspon's Sons Iron & Steel Co. 72-84
Guiberson Corporation 42
Gulf Refining Company 88
Gustin-Bacon Manufacturing Company .... *

H

Halliburton Oil Well Cementing Company...85
Hardway & Cathey 81
Harrisburg Pipe & Pipe Bending Company ....Front cover
Havana Manufacturing Company .... *
Heydrick Mapping Company 81
Hirsch & Hannay 72
Hope Engineering & Supply Company 29
Hopkins, Edwin B. 81
Hotel Lassen 80
Hough Manufacturing Co., Charles N.....70
Houston Pump & Supply Company....74
Houston Engineers 36
Hughes Tool Company ....Back cover
Hull, J. A. .... *
Humble Oil & Refining Company.... *

I

International Derrick & Equipment Co.....4-5
International Supply Company .... *
Iron King Manufacturing Company .... *

J

Jarecki Manufacturing Company 12
Jefferson Union Company .... *
Jensen Bros. Manufacturing Company.... *
Jones Company, The S. M. 74
Jones Oil Well Reamer Company .... *
Johns-Manville, Inc. .... *

K

Kansas City Bolt and Nut Company.... *
Kansas City Hay Press Company.... *
Keystone Pipe & Supply Company....77

L

Layne & Bowler .... *
Le Bus Rotary Tool Works.... *
Longhart Supply Company 38
Lorraine Corporation 49
Lucey Manufacturing Corporation....6-7
Ludlow Valve Manufacturing Company.....76
Lufkin Foundry & Machine Company.... *
Lunkenheimer Company .... *

M

M. & V. Tank Company .... *
Manzel Bros. .... *
MacClatchie Manufacturing Company .... *
Magnolia Petroleum Company 10
Maloney Tank Manufacturing Company.....69
Marion Machine Foundry & Supply Co.... *
McEvoy, J. H., & Company 89
McIntosh & Seymour Corporation .... *
Mcnam, J. B. 81
Metric Metal Works 8
Miller Co., Robert J. .... *
Moore, Lee C., & Company....17

N

Nabors Co., W. C. .... *
National Supply Companies 87
National Transit Pump & Machine Co.....24
National Turnbuckle Derrick Company.... *
Norris Brothers .... *
Northrup Equipment Company 61

O

Oil Conservation Engineering Company.....19
Oil Country Specialties Company.... *
Oil Well Supply Company .... *
Oklahoma Portland Cement Company 75
Okmulgee Boiler & Metal Works .... *

P

Pacific Oil Tool Company .... *
Parkersburg Rig & Reel Company.... *
Patrick, R. S. .... *
Patterson & Stuppi .... *
Pattin Bros. Company 14
Peden Iron & Steel Company....68
Pelican Well Tool & Supply Company.....72
Petroleum Iron Works .... *
Petroleum Rectifying Company 66
Pioneer Tank & Boiler Company.... *
Pittsburgh Reinfroced Brazing & Machine Company .... *
Powell Company, The Wm. .... *
Price, W. Armstrong 81

R

Ratigan, J. P. 45
Reading Iron Company 21
Reed Roller Bit Company 15
Regan Forge & Engineering Company....37
Republic Supply Company .... *
Ring, Dewitt T. 81
Robertson-McDonald Lumber Company 74
Robinson, A. .... *
Robinson, Heath M. 72
Robinson Packer Company .... *
Rock Island Plow Company .... *

S

Schley, Jack A. 81
Shaffer, J. E., Company .... *
Shaffer Specialty Company .... *
Sheffield Tool & Supply Company .... *
Simler, J. B. .... *
Simms, A. J. 72
Sinclair Refining Company 51
Smith & Company, Howard .... *
Smith Separator Company 89
South Chester Tube Company .... *
Southern Brass Manufacturing Company....80
Southern Engine & Pump Company.... *
Southwestern Purchaser .... *
Spang & Company .... *
Spellman, John M. 81
Spence Machine Company, The .... *
Spengler Core Drilling Company....71
Standard Engineering Company .... *
Stanley Belting Company 84
Star Drilling Machine Company .... *
Straus-Bodenheimer Company .... *
Stone, Jesse R. 81
Sullivan Co., The .... *
Sullivan Machinery Company 68
Superior Tube Company .... *

T

Texas Oil Pump Company 63
The Texas Company .... *
Titusville Forge 86
The Titusville Iron Works 82
The Tyler Tube & Pipe Company....44
Tnemec Paint & Oil Company .... *
Traction Machine Company 70
Trimont Manufacturing Company .... *
Trumble Gas Trap Company .... *
Twin City Company .... *

U

United Iron Works .... *
United States Torpedo Company .... *

V

Vacuum Oil Company .... *
Vinson, Elkins & Wood 81

W

Ward Chemical Company .... *
Waukesha Motor Company 64
Webster, C. W. 80
Westcott & Greis .... *
Western Machinery Company .... *
Westinghouse Electric & Mfg. Co. 16
Wickwire-Spencer Steel Company, Inc.....13
Williams & Company, J. H. 81
Williamsport Wire Rope Company .... *
Wilson & Willard 77
Wilson Oil Tools Corporation .... *
Winston, C. A. .... *
Wyatt Metal & Boiler Works .... *

Y

Yale & Towne Company .... *

Z

Zero Hour Torpedo Company .... *

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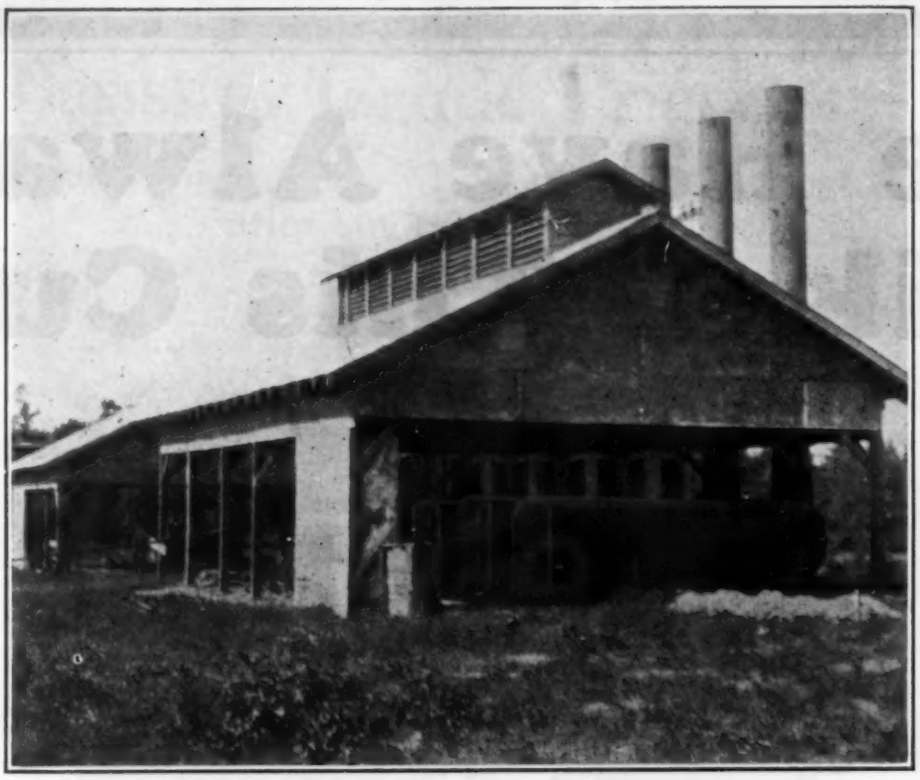

Model Boiler House Erected in Smackover Field

The OIL WEEKLY

July 17, 1925 Volume 38, Number 4

TABLE OF CONTENTS

NEW GRAVITY SCHEDULE MORE EQUITABLE 25
By J. Kent Ridley

HOW AMERADA CORPORATION KEEPS TRACK OF LEASE RECORDS 27
By W. Lee Sloan

DECISIONS CLARIFY WHAT ASSOCIATIONS CAN DO 28

ELEMENTS IN THE OIL WELL SPACING PROBLEM 31
By Lester C. Uren

PRAIRIE PRICE CHANGE SURPRISE IN OKLAHOMA 43
By W. Lee Sloan

MONTANA COMPLETIONS MAKE RECORD IN JUNE 47
By Brad Mills

LIGHT OIL FOUND IN "DEEP SAND" WELL AT SMACKOVER 48

ADVERTISERS INDEX 22

FIELD NOTES AND PRODUCTION STATISTICS 43

CRUDE OIL PRICE QUOTATIONS 50

DAILY AVERAGE PRODUCTION FOR U. S. . . 52

PERMITS FOR NEW WELLS 60

COMPLETIONS IN ALL U. S. FIELDS 53

WILDCAT DRILLING REPORTS 56

PERSONAL MENTION 30

NEW EQUIPMENT OF INTEREST TO PRODUCERS 65

LETTERS OF PAUL PEEBLES, *P. S. G.* 67

"SQUEAKS" FROM THE BULL WHEEL . . 79

GUIDE FOR PURCHASERS 83

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New Gravity Schedule More Equitable Basis for Crude Prices

Action of Prairie makes Mid-Continent highest price since 1921

By J. Kent Ridley,
Staff Representative

FOLLOWING as it did, upon the heels of a statement that was in effect a warning that it was possible for the drilling campaign in the Mid-Continent to produce more oil than could be economically handled, the new price schedule announced on Friday of last week by the Prairie Oil & Gas Company, came as a surprise to the producers affected.

As it stands, if there is anything in the gravity basis which was inaugurated not many months back, the new schedule which has been accepted by other purchasers, is the most equitable arrangement that has been worked out so far governing the price of crude.

In searching for a cause for the price change it is difficult to follow the reasoning of the parties responsible, and it may seem presumptuous to go behind the statement made by the Prairie officials in connection with the price change. But since their two recent statements are in a measure contradictory, some speculation would not be too presumptuous.

Stating conditions as they existed immedately before the price change, which is an increase: the Prairie had recently warned producers to not go too strong on drilling as there was danger of a surplus of oil in the near future if the program was continued. Demand for gasoline, both domestic and foreign, was disappointing to the degree that the gasoline market in Group 3 had eased off almost a cent per gallon, and at a time when previous forecasts had looked for an increase. The Standard Oil Company of Indiana had announced a discount system on both tank wagon and service station delivery which is in effect a cut in the price in the largest consuming territory of the country. And apparently all of the major purchasers were securing all of the oil they wanted and independent refiners in the Mid-Continent were paying premiums about in line with the custom at this season.

Want Top Grades

The real reason for the adjustment of prices, it then seems, is in Mr. Kelsey's statement that the new schedule is "more competitive with other purchasers in the field." The competitors here referred to are the premium payers who have been most interested in the better grades of oil which the Prairie needs to build up the average of the crudes entering its lines to conform with contracts with refiners. And it is entirely possible that the Indiana company's new marketing arrangement is responsible for an increased demand upon the Prairie for crude of the contract gravity.

With the announcement of the new schedule of Mid-Continent crude oil prices by the Prairie Oil & Gas Company, it was stated at the Company offices by Dana H. Kelsey, vice president and general manager, that while the new schedule reflects advances in some grades, this action should not be taken as any indication that we, of the Prairie Oil & Gas Company, see anything in the general situation within or relating to the oil industry, which warrants the expectation of substantial changes in prices, so long as the present relation between production and market requirements for crude oil is maintained. "Our company has for some time contemplated such change in our price schedule, but delayed making it effective until it could be done without reducing the price for any grade. We regard this schedule as being in the interest of many producers from whom we buy, and more competitive with other purchasers in the field.

"If refiners, marketers and producers are able to maintain prevailing balances, we hope to see present conditions in the industry become more stable."

It has been mentioned by the price makers of the Prairie that the increase has been contemplated for some time but had delayed the final posting until such a time as to not have a weakening effect upon the market situation. This statement is a confirmation of leading oil men that the price of Mid-Continent crude should have been advanced some time ago. The delay was obviously the result of the potential production of Garber, Braman and the Thomas pool. Only the first has shown any future worth for five water wells have just been completed in the Braman townsite while No. 2 Siler of the Twin State Oil Company in the Thomas pool did not come up to expectations.

Immediately after the new price schedule went into effect, all major purchasers followed the Prairie and immediately also the premium payers added a few cents to the Prairie new price. The Bolene Refining Company of Enid, an active bidder for high gravity oil, posted the following new schedule which is possibly the highest price now being paid for Oklahoma production.

40 degrees to 40.9 degrees	$2.36
41 degrees to 41.9 degrees	$2.44
42 degrees to 42.9 degrees	$2.52
43 degrees to 43.9 degrees	$2.60
44 degrees to 44.9 degrees	$2.68
45 degrees to 45.9 degrees	$2.76
46 degrees to 46.9 degrees	$2.84
47 degrees to 47.9 degrees	$2.92

It will be noticed that the above prices are only posted on oil above 40 degrees but as the Bolene Company is only interested in high gravity oils of Tonkawa and Garber, it has affected the market in both places.

This upward revision of prices places light oils at the highest level that has been reached since January, 1921, and the introduction of the 17 separate gravity prices in the new buying plan is expected to become popular with oil producers. This new gravity scehdule is patterned after the California plan of buying crude at the well, although the scale of prices on the two districts do not coincide, as will be noted by making a comparison of the California and Mid-Continent gravity and price schedules in this issue.

Declining light oil production throughout the Mid-Continent District, especially in Oklahoma, paved the way for the general advance in crude prices, and all the major purchasing agencies adopted the new price schedule promptly after the announcement made by Prairie with the opening of business Friday. Exceptions to the price quotations on lower grades of oil were made by Magnolia, which is virtually the only major company accepting heavy oils in any appreciable quantity in Oklahoma and Texas. Magnolia announced that it would retain its old price of $1 for 28 gravity and below, and $1.35 for 28 to 30.9 gravity crude. Magnolia's Mid-Continent price change was

made effective July 11, and a separate announcement was made July 13 to the effect that the Lockhart-Lytton Springs and Corsicana Districts would be placed under the Mid-Continent schedule, while Mirando and Luling, Texas, crude prices were not altered.

Gasoline Recovers

The Mid-Continent refined market was losing ground at the time of the crude advance, and independent refiners were shading their price quotations on gasoline in order to keep their products moving. U. S. motor grade of gasoline had been offered as low as 12⅛ cents, or nearly a full cent under the high mark set early in June when this product was scarce on the market at 13 cents, and high test export grade of motor fuel was likewise in a slump. Gasoline prices have partially recovered from this slump since the posting of higher crude prices, and early this week refiners were quoting 12½ to 12¾ cents for U. S. Motor grade, but buyers are taking very little interest in the market, with most of the buying confined to small spot orders. A general advance in tank wagon prices, especially in the Standard of Indiana territory, will be necessary to restore the gasoline market to a healthy condition, while in the meantime the independent refiners will be under pressure until the added cost of raw materials can be passed on to the consumer. An advance of one cent was made by the Indiana Company Tuesday, which strengthens the works.

Producers and crude buyers will be less inclined than ever to accumulate stocks of oil under the new price, and future production will be thrown on the market as soon as obtained. The major companies have been successful to a large extent in liquidating their huge stocks of crude in the Mid-Continent district since the first of the year, and practically all the storage oil held over from the proration period of last summer by independent companies has been disposed of. The major pipe line companies in the Mid-Continent district are not waging an active campaign for new crude connections, except in local fields, where current purchases are below normal line capacity. The Texas Company and the Magnolia Petroleum Company have been the most aggressive for new connections in Texas, and Magnolia practically gained its objective during June when its daily crude runs from Oklahoma, Kansas, Texas, Arkansas and Louisiana jumped to 71,900 barrels, representing a gain of 11,466 barrels over the daily average maintained in May, but a large portion of this new oil was of a heavy grade.

Mexia Storage Down

The Corsicana-Mexia district, which is the largest light oil storage center in Texas, was drawn on for 2,084,200 barrels of storage oil during the month of June, thereby bringing the total crude stocks in this district down to 23,340,900 barrels, or 4,893,000 barrels under the total stocks reported for the district on the first of the year. The withdrawal of crude stocks from this district during June was the heaviest on record, and was largely due to declining production in the nearby fields. Sinclair, Gulf and Pure made the greatest inroads in their reserve stocks during June, while Humble, Prairie, Magnolia, Texas and Atlantic also reduced their crude supply.

Magnolia Crude Runs Tend Upward in June

Dallas, Texas.—Magnolia Petroleum Company's crude runs during June from various fields in Oklahoma, Kansas, Texas, Arkansas and Louisiana averaged 71,900 barrels daily, as compared to 60,434 barrels daily in May. These figures represent all low and high gravity crudes produced and purchased by Magnolia during the month, and the 11,466 barrel gain in daily runs during June restores the company to a comfortable position on crude supply after dropping to a daily average of 53,265 barrels last March. The high mark in crude runs for the past year was established in November when runs amounted to 75,044 barrels daily.

Increased crude purchases made by Magnolia in the Luling and Lockhart-Lytton Springs fields in Southwest Texas accounted for the big gain in runs during June, while the company's new high gravity production in the Morrison-Davenport district equalized the slump in runs from several fields in Oklahoma and Kansas. Magnolia's daily average crude runs from the Luling field amounted to 9329 barrels in June, as compared to 2938 barrels, and the bulk of this low gravity oil was purchased from the United North & South Oil Company at the posted market price. The Lockhart-Lytton Springs field, which is producing 36 gravity and above oil, is Magnolia's second largest crude source in Texas, and during June Magnolia's daily runs averaged 6446 barrels, as compared to 4161 barrels in the month previous. Magnolia has only one small pumper in this field, and is paying a flat price of $2.00 for purchased oil at the well.

Magnolia is retaining its position as the largest purchaser of low gravity crude in the Mid-Continent District, and is the principal buyer of this grade of oil in Texas and Oklahoma. Magnolia's crude runs from the Smackover field increased 26,623 barrels during June, as result of renewed drilling activity by its production department, and this oil is being sent to steel storage, since the company has no pipe line outlet from this district.

Withdrawals from Oklahoma and Texas crude stocks were made during June by Magnolia in the face of increased daily runs. Oklahoma crude stocks were reduced by 183,320 barrels, while North and Central West Texas stocks were drawn on to the extent of 76,406 barrels.

Tanker shipments of refined oils (gasoline, kerosene and lubes) made by Magnolia during June amounted to slightly more than one million barrels under the peak mark set in May, while water shipments of fuel oil were almost completely checked, except for fuel oil loaded on tankers for fuel in making deliveries of refined oils. Not one single cargo of fuel oil was moved by Magnolia in June, probably due to the reaction in prices, while shipments of this product during the month previous were the lowest for the past six months. One tanker of crude amounting to 45,888 barrels was dispatched from the Beaumont water terminals during June. Water shipments made during past six months to the Atlantic Coast and foreign countries by Magnolia follows:

	Fuel Oil Gallons	Refined Oils Gallons	Crude Gallons
January	28,317,913	19,598,858	75,871
February	15,449,742	18,984,883	.....
March	19,426,944	32,355,649	121,145
April	21,592,332	32,378,784	95,724
May	12,944,749	35,639,068	.....
June	1,698,557	34,472,311	45,888

Magnolia's crude runs by fields for May and June follows:

	May Totals	June Totals
Cushing-Morrison-Davenport	182,406	240,391
Wewoka-Cromwell	292,726	227,632
Healdton	206,008	203,750
Hewitt-Graham	86,103	87,911
Burbank	87,889	85,825
Duncan	57,029	57,287
Yale	52,795	54,610
Augusta	37,046	35,838
Cement	23,199	23,981
Walters-Beaver Creek	9,398	9,378
Bristow	385	709
Totals for Okla. and Kans.	1,034,984	1,027,312
Luling	91,092	279,861
Lytton Springs-Lockhart	129,000	193,375
Electra	124,193	122,969
Mexia-Wortham	100,013	97,124
Burkburnett	91,027	87,287
Archer County	49,002	55,324
Mirando	49,966	36,586
Desdemona-Comanche	32,964	33,661
Ranger-Olden	21,516	24,617
Corsicana-Powell	24,659	23,064
Stephens County	21,238	19,860
Corsicana (Heavy)	8,922	10,179
Petrolia-Clay County	8,160	7,670
Thrall-Williamson County	1,821	1,482
Coleman County	254	358
Totals for Texas	753,827	993,417
Totals for Arkansas	60,018	86,641
Totals for Louisiana	24,632	49,614
Grand Total for 5 states	1,873,461	2,156,984

Gas Show in Bee County

Beeville, Texas.—W. G. Clark No. 1 Scott, about five miles north of Beeville, is being tested. A commercial gas well is expected to be completed in this well, opening a new field in Bee County.

A forty-foot sand and shale stratum was encountered recently, which contained considerable gas. The cement plug was drilled through and a perforated pipe set last week.

How Amerada Corporation Keeps Track of Lease Records

By W. Lee Sloan
Staff Representative

A lease record system of unusual merit is in use by the Amerada Petroleum Corporation of Tulsa, Oklahoma. Presenting the most important facts in regard to leases held by the company, the record is complete, concise, and a rapid reference.

In order to better understand the system, the form accompanying this article has been filled in. Each explanation of the factors which go to make up the system is outlined in such a manner that the reader will be able to get a full conception of its merits. There are a few things, however, which will be more thoroughly explained.

For instance, in the "Relinquished" part of the form, at the bottom of the sheet. When it is time for this part to be filled in, it is time for the loose leaf to be extracted from the file books and filed as past history. This part is filled in when the lease is abandoned, sold, exchanged or expired. The reason for the relinquishing of the lease is clearly outlined in this place.

When a lease is purchased, the instrument covering the lease is turned over to the lease record department. The lease record form is filled out from this instrument. Each lease is given a number and all instruments are filed numerically.

Photostatic Copy of All Leases

Before the lease is filed, a photostatic copy is made of the original instrument. This photostatic copy is filed in a large red envelope along with all the correspondence pertaining to the purchase of the lease. The original instrument is filed in a large white envelope.

The red envelopes are filed in cabinets in the lease record room where they are always accessible to members of the department. It is these red envelopes which are used in reference. The original instrument is never touched except at times when there seems to have been an error in transposing the information from the lease record form. This saves the wear and tear on the original instrument. In some cases, the original instruments are handled so much that the contract is worn out before the lease expires and it is this reason that has given the Amerada the idea of photostatic copies.

Double Filing System

The original instruments being filed in the white envelopes, are placed in the vault for safe keeping. In case of fire or other hazards, the Amerada company is assured of having one of the forms saved. The original being filed in fireproof vaults is the one most likely to survive. However, in case the original is destroyed, the photostatic copy is sufficient evidence to bind the contract.

Amerada Petroleum Corporation
LEASE RECORD
State of OKLAHOMA Lease No 23456
Interest 7/8 Kind of Lease OIL & PRODUCERS 5¢

Lessor C. B. HUBBARD AND CORA HUBBARD, HIS WIFE
Date of Lease JAN 1ST 1925
Lessee AMERADA PET CORP.
Assignment
Date of expiration JAN 1ST 1930
If Departmental, date of approval of lease, and/or assignments
Date (s) rental due JAN 1ST 1926, 1927, 1928, 1929, 1930
Amount of rental $1.00 PER ACRE
Where and how payable CERTIFIED CHECK, FIRST NATIONAL BANK, OKEMAH, OKLA.

County SEMINOLE
Acreage 120 A. N½ SE¼ S 36 T 8 R 7 E
Description
Purchase Price $ 10800.00
Commissions, etc.
Old Bonus $15000.00
Old Royalty 7/8
Gas Royalty $300.00 ANNUALLY

Sketch showing location of lease.

REMARKS.
OFFSETS TRACTS TO GYPSY OIL CO. PRODUCING WELL IN ADJOINING SECTION

Special provisions of Lease, reasons for acquisition, etc.

Drilling Record.

Well No.	Commenced	Finished	Depth	Initial Production	Sand	REMARKS
1	1/15/25	3/20/25	3480	164 BBLS	SMITH	
2	1/25/25	3/28/25	3478	1280 BBLS	SMITH	
3	2/14/25	4/2/25	3482	1090 BBLS	SMITH	
4	2/21/25	4/18/25	3484	860 BBLS	SMITH	
5	4/16/25					

RELINQUISHED.

Cancelled - N

(Abandoned, sold, exchanged, returned or expired with date) and general information.

The lease record form being used by the Amerada Petroleum Corporation

Another good reason for the double filing system is the fact that heads of other departments and outside joint interestholders are invariably taking the envelopes from the file and holding them sometimes for several days. With the double system no time is lost when such a case occurs. After referring to the red envelope file and finding it out, the clerk in the department goes to the vault and gets the information desired. The white envelopes are never taken from the vaults and one has never been lost for this reason.

Both in the white and red envelopes we find a copy of the lease record form like the one shown in the accompanying illustration. It is hardly possible that three copies of it would be lost at the same time. So impossible in fact that one never has been lost by the lease record department of the Amerada company.

Lease Record Form

Particular attention is called to some of the most important features of the "Lease Record" form in the illustration. First, the sketch showing the location of the lease which is drawn in by members of the department. In most cases, it is easier for the land man to get a better idea of the location from such a plat than it is from a description. The plat also shows the number and location of all producing and drilling wells on the lease. It therefore serves a double pur-

pose by showing the location of the lease and the drilling and producing activity on it.

In the "Remarks" part of the form is found the reason for the purchase of the lease. In the example used the lease was purchased on account of the fact that another company had a producing well on an adjoining tract. Sometimes the explanation reads: "Approved by our geological department," or "part of our acreage contract on John Doe drilling well."

The Drilling Record

The drilling record feature is also important. In this part of the form is found all the information regarding the producing and drilling well. The date started, the date of completion, the total depth, the initial production and the kind of sand from which oil is being produced. With this information so simply stated on the record, the land department head is able at all times to get adequate information for a clear visualization of activity on the lease.

Payments on Reverse Side

On the reverse side of the form is shown the details of payments made on the lease. The date the payment was made, the description of the lease, the office from which the payment was made, the voucher number, the cost of the lease and the oil bonus, the amount of the lease rental and the amount of the royalties paid are the important parts of the form. On this reverse side, the land department is able to ascertain all the information regarding the payment and also to get a ready knowledge of the number of the voucher sent out for payment of the rental. After getting the number of the voucher covering the payment, the head of the department can call upon the accounting department for the filed voucher. On this voucher is attached the canceled check and also the correspondence regarding the payment.

The "lease record" sheets are filed in a loose leaf binder according to their location in the township and range. Starting from the southern part of the state of Oklahoma and going north to the border of Kansas. Each book has as many as five townships running from north to south or vice versa. This system of filing is done in order to expedite the reference work. At the mention of a certain prospective purchase, the reference can be made in a few moments and determination of whether the company already holds protection near the potential purchase, can be made.

Decisions Clarify What Associations Can Do

Detroit, Mich.—Organizing the units of an industry into a trade association to deal with its common problems is both legal and desirable declared E. W. McCullough, manager of the Department of Manufacture of the United States in an address here before the Society of Brass Manufacturers.

"Moreover," he continued, "recent decisions of the United States Supreme Court have made it clear that important information vital to the industry may be gathered and passed on by the association to its members and made available to the public without governmental interference, provided that, at all times, such information is not used in any way as a vehicle for price-fixing or curtailing production."

Mr. McCullough went on to say that "the largest units in industry have their organization and equipment for gathering factual information useful for intelligent management. The smaller units, unable to finance individually the gathering of similar information, if we construe the recent Supreme Court decisions correctly, may organize an association and set up within such organization machinery for rendering a like service and without contravention of law."

"After a trial of more than a half century," he said, "the trade association has proven its worth as a medium for service to the members of an industry who, although they continue their relations as competitors, yet work together cooperatively in dealing with non-competitive problems which come before them from time to time.

"Among the studies which have profited such associations most are those relating to research, scientific and general, simplification and standardization, cost accounting, setting up qualified standards, arbitrating differences, setting up of codes of recognized trade practices, the establishment of technical schools, etc. In other words, those problems the study of which is valuable as information to the industry and the solution of trade questions, marks advancement.

"Trade associations in their early beginnings were largely organized for defensive or offensive purposes—a sort of protective agency—while today the objectives of the modern trade association are largely, if not altogether, for the enlightenment and progress of the industry rather than for direct personal benefit of its members.

"The Chamber of Commerce of the United States, whose constitutent membership represents so large a percentage of trade associations, has continually given attention to the problems and the progress of these associations and has rendered most valuable aid in working with Government for a better understanding as to what they might or might not do.

"It is well to keep in mind," Mr. McCullough suggests, "that the decisions referred to change no laws and give no greater liberty to associations than before but they do make clear the fact that many activities in which trade associations generally desire to engage are not in themselves under ban of law and if they are used intelligently and for the common good and not to create restraints in trade, there will be no interference with them."

Storage in Tampico District Shows Loss on June 1

Tampico, Tamps.—Storage of light and heavy crude, topped crude and distillates in the Tampico district at 7 a. m. on June 1, totaled 19,180,017 barrels, a decrease of 167,049 barrels over the amount in storage at terminals and in the fields in the Tampico district on May 1. The decrease was mainly in topped crude which dropped from 6,856,431 barrels May 1, to 6,470,384 barrels a month later. Slight decreases were shown in heavy crude and distillates, while light crude increased from 2,877,362 barrels to 3,200,889 barrels.

Considerable of the increase in light oil storage was accounted for by the Mexican Eagle, which had 1,643,818 barrels in storage on June 1, while the Pan American Eastern showed an increase of approximately 100,000 barrels with nearly the same amount accounted for by the Transcontinental Petroleum Company (Standard of New Jersey). The former Doheny company was the only one showing a real substantial increase in storage, gaining 180,389 barrels over the previous month. Slight increases were shown by the Agwi (Atlantic Gulf & West Indies), Dutch Shell, Mexican Gulf, Island Oil, Pierce Oil and The Texas Company. The greatest decrease was that of the Standard of New Jersey, which dropped from 2,442,058 barrels on May 1, to 2,102,938 barrels one month later. Over 300,000 barrels of this decrease was in heavy crude and more than 100,000 barrels in topped crude.

Storage of the important companies according to classes of oil together with June totals as compared to the total storage at 7 a. m. on May 1, follow:

Company—	Light Crude	Heavy Crude	Topped Crude	Distillates	Total June	Total May	*Increase †Decrease
AGWI	15,364	.....	.....	.....	15,364	14,881	* 483
Cortez Atlantica	31,479	.....	.....	.....	31,479	32,495	† 1,106
Dutch Shell	30,648	2,595,786	1,617,283	460,926	4,704,643	4,631,316	* 73,327
Empire Gas & Fuel	.....	128,811	.....	.....	128,811	165,278	† 36,467
Mexican Gulf	308,688	305,525	.....	.....	614,213	603,067	* 11,146
Island Oil	12,423	.....	.....	.....	12,423	10,045	* 2,378
Pan Amer. Eastern	584,327	574,175	1,838,409	562,413	3,559,324	3,378,935	*180,389
Mexican Eagle	1,643,818	628,173	2,626,575	687,281	5,587,847	5,650,518	† 64,671
Mexican Seaboard	41,684	141,484	.....	.....	183,168	258,234	† 75,066
Mexican Sinclair	.....	444,106	.....	.....	444,106	530,136	† 86,030
Pierce	31,826	36,046	126,359	110,734	304,965	278,765	* 26,200
Southern Pacific	.....	286,128	.....	.....	286,128	297,267	† 11,139
Texas	152,868	137,733	49,990	19,419	360,010	276,179	* 82,831
Transcontinental	308,175	1,482,834	207,960	103,969	2,102,938	2,442,058	†339,120
Miscellaneous	39,589	810,689	3,808	1,512	855,598	786,982	*68,706
Total 7 a.m. June 1	3,200,889	7,571,490	6,470,384	1,946,254	19,189,017		†167,049
Total 7 a.m. May 1	2,877,362	7,655,477	6,856,431	1,966,796		19,356,066	

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Jack Becker of the Becker Specialty Company, Tulsa, has been in Los Angeles for the past two weeks negotiating with the Regan Forge & Engineering Company whose products he has arranged to handle in the Mid-Continent. He will return to Tulsa during the latter part of July.

Carl E. Miller of Chicago, vice president of the James B. Berry's Sons Company, vice president of the Lincoln Oil Refining Company, Robinson, Ill., and president of the Oil Securities Company, Sistersville, West Virginia, arrived in Los Angeles last week to spend a month on the West Coast.

Roland B. Day has taken over the direction of the petroleum and oil shale consulting practice of Dr. David T. Day, 715 Nineteenth Street, Northwest, Washington, D. C.

Earnest P. Kipp, manager of the Denver office of the Hazard Manufacturing Company, L. A. Eberhart, secretary of the Longhart Supply Company of Fort Worth, and L. L. Rector, manager of the Mountain States district office of the Longhart Supply Company at Casper, have just completed an automobile tour through the various oil and gas fields in the Rocky Mountain district. The trio covered more than 3100 miles during the tour, making a number of side trips to popular pleasure resorts, including a drive into Canada.

J. M. Davis, sales manager of the Western Machinery Company, Los Angeles, is taking his annual vacation in the vicinity of Seattle.

T. O. Lane, New York representative of the Vacuum Oil Company, who has spent the past two months in the Vacuum offices of Houston, left last week to resume his work in New York.

C. C. Harris, formerly with the Frick-Reid Supply Company, has joined the sales staff of the Longhart Supply Company of Fort Worth, and has been assigned to the Mexia-Corsisana district with headquarters at Corsicana.

L. F. Baash of the Baash-Ross Tool Company, Los Angeles, left last week for a two weeks vacation in the Lake Tahoe region.

George E. Failing, state agent for the Sullivan Diamond Core drills, has placed on display an exhibit of geological formations at the office of the company, 505 Atlas Building, Tulsa.

John L. McMeans, who was formerly in charge of the land department for the Humble Oil and Refining Company in Central West Texas, is now connected with the Landreth Production Corporation at Breckenridge, Texas, as manager of the land and lease department. McMeans was also head of the land division of the Producers and Refiners Corporation in the Amarillo district prior to the sale of the properties to the Prairie Oil Company.

B. H. Johnson, well known in oil circles in the United States, who spent two years in Venezuela, working one year with the New England Oil and Refining Company and one year with the Caribean, has been in Los Angeles for the past month. He leaves this week for New York where he will take passage for Venezuela to sell Regan Forge & Engineering Company's products. Much of his time in California has been spent at the San Pedro plant of Regan Forge.

H. N. Pardee, formerly general production superintendent for the Humble Oil and Refining Company in the Cisco, Texas, district, is now general manager and superintendent of production for the Landreth Production Corporation of Breckenridge.

Dave C. Stewart, vice president and manager of pipe lines for the Magnolia Petroleum Company with headquarters at Dallas, accompanied by his wife, left recently for Mt. Plemmons, Michigan, where they will spend the rest of the summer.

Marvin Thomas, formerly district manager at Tulsa for the Interstate Pipe Company, has announced the formation of the Southwest Supply Company to succeed the Interstate Pipe Company. Officers of the new organization, which will have offices at Houston, Pittsburgh, Bartlesville, Tulsa and St. Louis, are John G. Phillips and W. D. Reynolds of Bartlesville, Oklahoma, and Marvin Thomas of Tulsa.

F. D. McMahon, resident superintendent in the Breckenridge district for the Humble Pipe Line Company for the past four years, was honored recently with a banquet given by sixty employes of the company at the Breckenridge chamber of commerce on the eve of his departure for Cisco, where he will be assistant superintendent of the North and West Texas districts. Support was pledged by the body to J. E. Caffrey, who succeeds Mr. McMahon at Breckenridge.

J. M. Gardiner, for five years connected with the Transcontinental Oil Company in both Pittsburgh and Chicago offices, has resigned as wholesale sales manager, Pittsburgh division, of this company, and is now located with O. D. Robinson, Union Bank Building, Pittsburgh.

Interest Centers on Pine Island Deep Test

Shreveport, La.—Attention of Louisiana operators is centered on the current test of the Ohio Oil Company's E. K. Smith No. 17, in section 12-21-15, in the vicinity of the Dixie Oil Company's famous deep sand gasoline well in the Pine Island District of Caddo Parish. Casing has been set on a packer to afford a test of an oil-bearing sand logged at a total depth of 3317 feet. While being bailed today, the well made a very brief head of oil mud; and then went dead. Bailing is to be continued until the test is completed.

Since the discovery last December of deep sand gas production richly laden with gasoline, Louisiana operators have been very hopeful as regards the possibility of oil production from the unexplored deep sands of the Pine Island structure. The Dixie Oil Company, which found the deep gas sand by cable tool drilling, has resorted to the use of a rotary rig on its Dillion No. 53, in section 13-21-15; and an attempt is being made to cement a string of casing at 3689 feet, at a point believed to be below the top of the high pressure gas sand. The newly-found sand has not yet been penetrated to any considerable depth, as the high pressure of the gas usually blows the tools out of the holes before adequate tests can be made in search of an oil reservoir thought to underlie the rich gas. The Dixie Company is coring at 3260 feet in its Jolley deep test, in section 27-22-15.

The Fortuna Oil Company is trying to clean out its deep sand gasser on the property of the Caddo Levee Board, in section 8-20-15, near Oil City; and drilling is in progress at around 3250 feet in its Mitchell well, in section 17-18-16. The Texas Company has resumed drilling in its Jeems Bayou deep test, in section 15-20-16, near Mooringsport.

The Palmer Corporation's Davis deep test in section 23-21-10 of the Cotton Valley Field found only salt water in the Woodbine sand. It is said that there has been some discussion among Cotton Valley operators, who contributed dry hole money to defray the cost of the Woodbine test, regarding the advisability of continuing operations, to test the Trinity and other deep sands which are productive of gas at Bellevue and on Pine Island.

Elements in the Oil Well Spacing Problem Discussed

Many factors involved in proper proceedure

By Lester C. Uren,
Berkley, California

DETERMINATION of the distance apart at which wells must be spaced to realize the maximum profit in oil production is one of the most important problems confronting the oil producer, a problem the importance of which has been fully recognized by producers for many years, but one, nevertheless which has not yet been satisfactorily solved. Sporadic efforts toward a solution of the problem have been made by certain government agencies such as the United States Bureau of Mines, and some useful data have been accumulated; possibly some of the oil companies have progressed further, but if so their results have not been published. The present paper is offered as a general outline of the well-spacing problem, in which the variables to be studied are enumerated, the present state of our knowledge concerning them briefly discussed, and a program of research proposed which should lead to a sitisfactory conclusion.

This paper reviews the several factors which determine the spacing of wells in planning the development of oil fields to secure the maximum economic ultimate recovery in petroleum. The physical factors controlling oil drainage are given special consideration, and the limitations of our present knowledge on their influence are pointed out. The expulsive effects of gas pressure, gravity, and edgewater pressure in causing movement of oil into wells are discussed, and quantitative experimental data are produced showing the influence of pore resistance and capillarity of oil sands and viscosity and adhesion of the oil in resisting the expulsion forces. The influence of geologic structure, of the diameter of the well, and of the depth and thickness of the productive sand or the economic interval between wells is also explained. The more important economic considerations in planning the development program—particularly the interest cost of deferred production, the cost and efficiency of production and the future selling price of petroleum—are discussed in general terms. The fallacy of using well production records as a basis for well-spacing, without supplementary study of the more fundamental variables controlling oil drainage, is pointed out. In conclusion, the author summarizes in tabular form the qualitative effects of the several variables discussed and suggests the necessity for a thorough technical study of the factors controlling oil drainage in order that the spacing of wells may be placed on a more scientific basis.—Reprinted from the Bulletin of the American Association of Petroleum Geologists, March-April, 1925.

When a new oil field is discovered and the early development work has proceeded to a point where certain areas are known to be productive, the owners of these proved sections are at once confronted with the necessity of determining upon a suitable development program. How many wells shall be drilled? Where shall they be located? When should they be drilled, and in what sequence? Economic considerations are uppermost in the mind of the producer in his effort to plan the development so as to realize maximum profit. The greater the number of wells, the more rapidly and completely will the oil be recovered. Obviously, as few wells as will result in recovery of the available oil should be drilled; and yet the cost of additional wells will be offset to a certain point by the interest-earning capacity of money more promptly realized through the drilling of the additional wells. The size and shape of the property and the activities of neighboring operators will influence the result. The condition of the market for petroleum and considerations of probable future price will also have a bearing. All of these considerations are distinct from the more technical factors which determine the effective radius of drainage of a well under the conditions prevailing, and which influence the percentage recovery of the available oil.

We may classify these different variables under two general headings:

Physical Factors—
Gas pressure.
Gravitational effects.
Edgewater pressure.
Porosity and texture of reservoir rock.
Oil viscosity: capillarity and adhesion.
Influence of the diameter of the well.
Depth and thickness of the productive sand.
Influence of geologic structure.
Economic Factors—
The interest cost of deferred production.
The cost of production.
The selling price of oil.
Competitive conditions.
Production efficiency.

It is apparent that the economic spacing of oil wells is dependent upon a variety of factors, some of which are exceedingly difficult of analysis and in certain cases impossible of accurate determination. Since the elements entering into the well-spacing problem are variables, it follows that their resultant will also be variable, that is, a suitable interval between wells for one set of conditions will necessarily be different from that appropriate for a different set of conditions. We can best proceed toward the solution of a problem involving a number of different variables by a critical study and quantitative evaluation of each factor. In the following discussion, it is proposed to review briefly our present knowledge concerning each factor entering into the problem of well-spacing, and to indicate wherein our understanding falls short of what is necessary to effect a complete solution. An effort will also be made to suggest methods of investigation which will close the gaps in our present knowledge and make possible a fuller understanding of the factors involved.

Physical Factors

The effect of gas pressure—The pressure of natural gas dissolved and occluded within the oil is recognized as the most important of the expulsive forces which are responsible for movement of oil into the wells. Investigations have shown, in the case of flowing wells, that the oil-production decline curve displays a marked parallelism with the gas-pressure decline curve[1] (Fig. 1). Many observers have note a certain relation between the volumes or oil and gas produced during unit time intervals. Laboratory studies have shown that the pressure resulting from natural gas provides a force of great magnitude, capable of driving crude petroleum through porous sands for hundreds of feet; and the distance which the oil may travel, or the drainage radius of the well, will vary with the pressure of the associated gas.

Recent tests made by the United States Bureau of Mines have indicated that petroleum is capable of dissolving about half of its volume of natural gas at normal atmospheric temperature and pressure. At high pressures, according to Henry's law, the solubility of the gas should increase in direct ratio with the pressure, so that, at say 250-pound pressure, the oil should be capable of dissolving about eight times its volume of gas; as 500 pounds, sixteen times its volume, and at 1000 pounds, thirty-two times its volume. That is, if we had a cubic foot of oil saturated with dissolved gas under a pressure of 1000 pounds per square inch, and reduced the pressure to atmospheric, 32 cubic feet of gas would be liberated;

[1] C. H. Beal, "The Decline and Ultimate Production of Oil Wells," U. S. Bureau of Mines Bulletin 177, page 76.

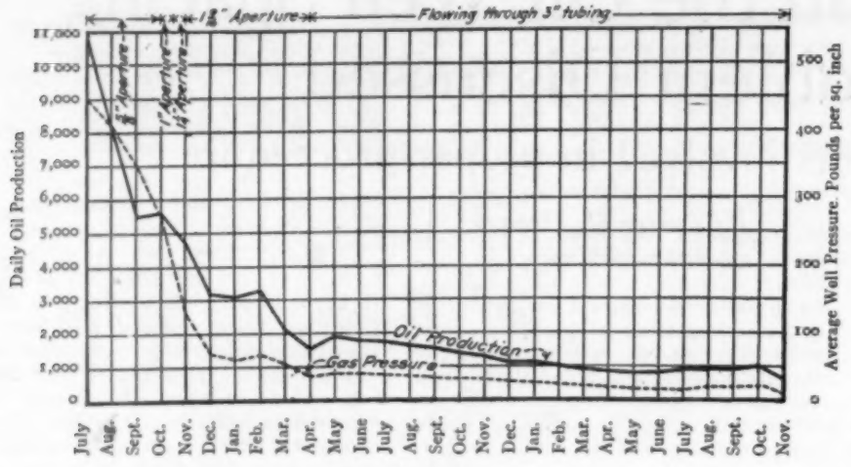
Flowing through 3" tubing
1 3/8" Aperture
Daily Oil Production
Average Well Pressure. Pounds per sq. inch
Oil Production
Gas Pressure
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov.

Figure 1
Oil production and gas pressure decline curves for a flowing well in the Midway-Sunset field, California. (After C. H. Beal in the U. S. Bureau of Mines, Bull. 177).

and if this gas were retained within the oil in occluded form, the oil would literally expand to thirty-three times its original volume. It is chiefly this expansive force of the dissolved and occluded gas which causes petroleum to flow from the sand into the well. In practice, however, we do not recover anything like 32/33 of the oil present in the sand; hence the present process is a wasteful one, much of the gas apparently escaping from the oil in the sand without doing useful work in moving oil.

One reason for this inefficiency may be found in the tendency of the oil to become concentrated in the lower horizons of the strata to which it has access. When a part of the oil has been forced out of the sand, the remainder settles to the bottom of the containing stratum, leaving a layer of drained oil sand just beneath the cap rock (Fig. 2). Gas finds its path of least resistance through this drained portion of the reservoir rock, escaping from the oil and flowing to the well outlets from remote positions.

As gas is an important factor in its influence on oil drainage, in determining the appropriate spacing of wells in a given locality, studies must be made of the available pressures and the rate at which the pressure is declining. Such information may be obtained by a study of static fluid levels in wells at different periods, or by making closed pressure tests at regular intervals of time. Such investigations should contemplate the possibility of developing methods for improving the efficiency of gas expulsion, such as the maintenance of back pressure on wells[2], pumping gas back into the sands,[3] or admitting high pressure gas to partially exhausted sands from an extraneous source.[4]

The manner in which gas accomplishes this expulsion of oil from the sand should be studied. Is its action entirely due to expansion from within as suggested above, or is it partly the result of expansion of large bodies of free gas trapped at favorable points in the reservoir rock? If the former, how do bubbles of gas move through the minute openings between sand grains, and just how do they accomplish movement of the associated oil? To what extent does diffusion make possible the translation of natural gas in solution through petroleum, and over what distance and how rapidly is such diffusion accomplished?

Gravitational effects in oil drainage—In addition to gas pressure, gravity provides an ever present force which has an important influence upon the flow of oil into a well. As a result of gravitational force, the pressure within a body of liquid increases directly with depth—a force which is always equivalent to the weight of the superimposed body of fluid at any depth. This static pressure within the oil in the reservoir stratum therefore increases with the thickness of the stratum, the static head developed in a body of saturated oil sand 100 feet thick being ten times that possible in a sand only 10 feet thick. Since pressure within a fluid is exerted equally in all directions, in the lower portions of thick sands considerable lateral pressure will be developed, comparable in magnitude, in some cases, with the pressure exerted by natural gas. In the lower horizons of an oil sand 100 feet thick, for example, a static pressure of about 40 pounds per square inch will be developed; in a 200-foot sand, 80 pounds per square inch. In some of the Southern California fields productive formations as thick as 800 feet have been logged. If these are without impervious partings, so that downward migration of oil throughout the full thickness of the productive zone is possible, pressure as great as 320 pounds per square inch may be developed merely as a result of the action of gravity. Figure 3[5] will serve to demonstrate the variation in rate of flow for different static pressures corresponding to different heads. In any case, gravitational pressure results in variation in productivity of sands at different depths, more oil entering the well per unit of wall area near the bottom of the productive formation than near the top. How do such conditions influence the vertical and horizontal movements of oil in the reservoir rock in the vicinity of the well? Does oil in motion through sands possess a pressure equivalent to the full superimposed hydrostatic head, or is this pressure partially reduced by in-

[2]T. E. Swigart, "Experiments on Back Pressure on Oil Wells," Reports of Investigations, U. S. Bureau of Mines, No. 2420, December, 1922.

[3]The writer has recently designed a pump for extracting gas from the oil in the well and pumping it back into the space above the oil surface in the productive sand, thus restoring and maintaining the original gas pressure.

[4]M. J. Kirwin, "Effects of Extraneous Gas on the Production of Oil Wells in the Lyons-Quinn Field of Oklahoma," U. S. Bureau of Mines Reports of Investigations, No. 2612, June, 1924.

[5]The graphs of Figs. 3, 5 and 6 are from data given in the thesis of R. S. McIntyre, entitled, "A Study of Factors Influencing the Underground Drainage of Oil Sands," University of California, 1924, conducted under the supervision of the author.

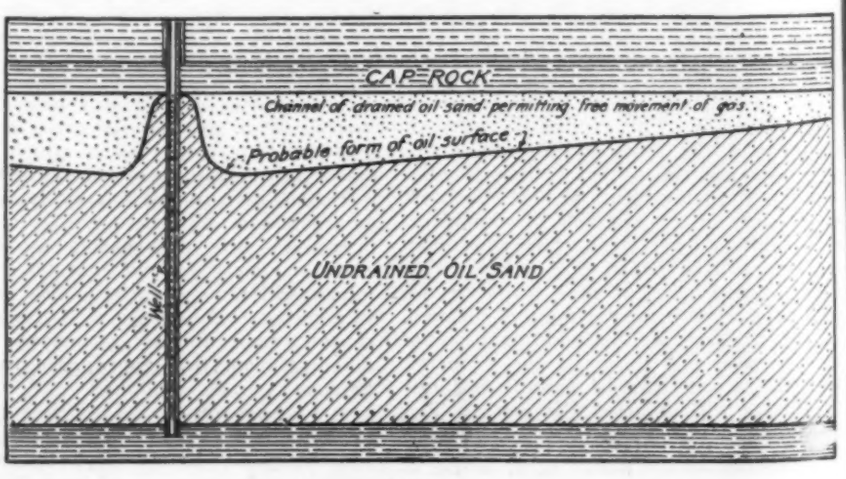
CAP ROCK
Channel of drained oil sand permitting free movement of gas
Probable form of oil surface
UNDRAINED OIL SAND
Well

Figure 2
Sketch illustrating drainage of gas through channel beneath cap rock from which oil has settled by gravity. The well is assumed to be flowing.

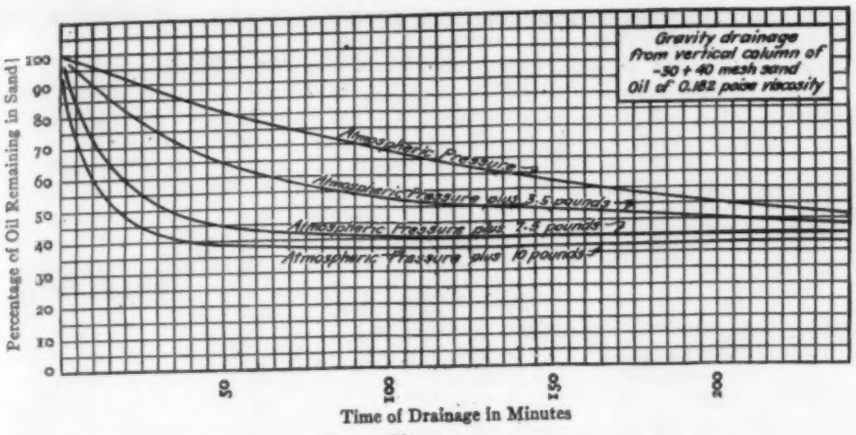
Gravity drainage from vertical column of -30 + 40 mesh sand Oil of 0.182 poise viscosity
Atmospheric Pressure
Atmospheric Pressure plus 3.5 pounds
Atmospheric Pressure plus 7.5 pounds
Atmospheric Pressure plus 10 pounds
Percentage of Oil Remaining in Sand
Time of Drainage in Minutes

Figure 3
Graphs showing results of pressure drainage tests for different static heads (30 to 40 mesh sand, 24.5 degrees B. crude petroleum.)

ertia and pore resistance? What is the nature of the hydraulic gradient in the sands within the productive formation in the vicinity of a producing well?

After gas pressure has become exhausted, the oil still remaining in the reservoir rock may continue to flow into the wells as a result of downward concentration of residual oil and the static pressure thus created. Such flow may only be induced, however, by maintaining a fluid level in the well below that in the surrounding sand.[6] This depression of the fluid level within a well will result in gradual depression of the fluid level in the surrounding oil reservoir rock, the oil surface within the sand assuming a convex-upward surface, the drainage slope gradually flattening and extending farther from the well as drainage proceeds (Fig. 4). The limiting condition for these slopes is a straight line which apparently determines the radius of drainage of the well in so far as gravity is concerned. Considered in terms of three dimensions, this drainage slope virtually forms an inverted cone with the well as the axis. Certain small-scale tests in a glass-walled box made under the direction of the writer have indicated that these slopes are usually less than five degrees even for sands as fine as 60 mesh and for very viscous oils. If the angle for a particular set of conditions were 5 degrees, a well penetrating a body of oil sand 100 feet thick would have an ultimate drainage radius, by gravity alone, of 100 divided by the tangent of 5 degrees, or about 1150 feet. A sand 25 feet thick, on the other hand, would have a drainage radius of only 287.5 feet under otherwise similar conditions. When the fluid level in the well is eventually reduced to the bottom of the productive sand, a limiting condition determining the extent of gravity drainage is thus found in what may be termed the "angle of repose" of oil in sand. The slope of this fluid surface and the thickness of the sand will also determine the disposition and extent of a body of undrained oil sand between wells, which will ultimately have an important influence on the problem of well-spacing. With higher oil prices, the oil contained in these undrained areas between present producing wells will in many cases justify the drilling of additional wells intermediate between the old locations.

Realization of these effects of gravity drainage suggests several uncertain factors, which must be investigated before the influence of gravitational force on the well-spacing problem can be fully evaluated. What is the angle of repose of oil in sand, and how does it vary with the viscosity of the oil and the texture of the sand? What is the form of this equilibrium oil surface: Is it truly conical or is it convex upward or concave upward? To what extent does the fluid level maintained in the well determine the form of this surface before equilibrium is reached?

The effect of edgewater pressure—The anticlinal theory of oil accumulation requires that everywhere about the edge of an oil deposit the oil-reservoir stratum must be saturated with water. The field evidence shows this to be almost universally true, the edgewater being in most cases under pressure so that it tends to flow up the dip of the structure and replace the oil as it is withdrawn. This edgewater pressure may conceivably exert a considerable influence in forcing oil from the reservoir rock into wells, and hence may influence the economic radius of drainage and economic spacing of wells. In the Bradford field of Pennsylvania, advantage has been taken of the buoyant effect of water in flooding certain portions of the field and forcing the oil into nearby wells from which production has been secured long after normal flow of oil due to gas and gravity pressure had ceased. In certain fields such as the Coalinga field of California, the rate at which the edgewater lines are encroaching toward the heart of the field has been carefully measured. Movement of these edgewater lines is apparently slow. At Coalinga it has apparently averaged only about 150 feet per year; in the fine grained sands at Bradford only 35 feet per year; and experience at Bradford has also shown that when the water wave has proceeded about 600 feet from the center of pressure, all further migration apparently ceases.

It is evident that these edgewater lines are very slow in their readjustments. On the other hand, it must be true that wells in the heart of a field remote from the edge water lines are able to extract a considerable portion of the oil within their radius of influence in a few months' time. It would appear, therefore, generally speaking, that wells extract most of their oil before edgewater pressure becomes operative, and that we might dismiss the edgewater influence as a force of almost negligible importance in so far as normal individual well drainage is concerned. While edgewater pressure is recognized in its broader aspects as a factor of great economic importance—one which in its aggregate effect will eventually be responsible for the recovery of much oil that would otherwise be left in the sands—and while wells near the edgewater lines profit somewhat by the concentrating effect of water pressure upon the oil, it is regarded as too slow in its action to influence production of wells over an entire field to an important degree. At any rate, it is difficult to conceive how wells in the heart of an oil field, sur-

[6]L. C. Uren, "The Significance of Fluid Level in Oil Well Pumping," Transactions, American Institute of Mining and Metallurgical Engineers, February, 1925.

Figure 4
Illustrating formation of drainage lines which approach a "critical angle of repose," determining the form and extent of an undrained cone of oil sand between wells.

rounded by a screen of other productive wells, will be appreciably influenced by edgewater pressure.

This reasoning suggests several questions worthy of critical investigation: Over what distances may edgewater pressure be effective in sands of different grain size and porosity? For varying degrees of sand texture and pressure, how rapidly may water encroach upon an oil-wet sand? What effect will dip of structure and irregularities in extent of development have in influencing this edgewater pressure?

While the edgewater pressure may be regarded as of minor importance in oil drainage, it must be admitted that the menace of water incursion in oil-producing properties located near the edge of a field will often have an important bearing upon the development program and the spacing of wells. Wells near the edgewater lines should be less closely spaced since they will in all probability be short lived, due to the necessity for early abandonment on account of water incursion.

Having now discussed the natural forces responsible for expulsion of the oil from the reservoir rock, let us next turn to the natural forces opposing movement of oil from the sands.

Influence of porosity and texture of the reservoir rock—The movement of fluids through granular rocks is influenced to an important degree by the size of the openings through which the oil must flow. The quantity of oil that may be stored in a reservoir rock depends directly upon the porosity. These variables are fundamental in any scientific study of well-spacing.

Melcher[1] has contributed valuable data on the porosity of oil and gas sands from which it appears that the space available for oil storage in commercial-oil sands ranges between 4 and 37 per cent of the gross rock volume, apparently averaging about 25 per cent. King[2] has made extensive studies of the lithologic character of sands, of the rate of flow of water through sands, and of the pore resistance offered by varying sizes of sand for different rates of flow. Slichter[3] has developed mathematical formulas by means of which it is theoretically possible to compute the rate of flow of the fluid through sand of a given grain size and porosity. Much of King's and Slichter's data, though concerned primarily with water drainage, bear directly upon the oil-drainage problem. Further experimental work must be done, however, to develop the necessary constants and exponents for use in Slichter's formulas, and to adapt them to the unique conditions attending oil and gas drainage.

The following questions indicate to some extent our present uncertainty regarding the practical influence of the sand factors on the problem of well-spacing: What amount of resistance is offered by sands of different grain size and porosity to the flow of oils of varying viscosity? How does this resistance vary with change in the rate of flow? What effect will converging flow toward a well outlet have in altering the resistance offered by the sand at different distances from the walls of the well? Does flow due to expansion from within, caused by the influence of dissolved and occluded natural gas, vary materially from the normal hydrostatic flow conditions studied by King and Slichter?

The grain size also influences, to an important degree, the amount of oil retained by the sand as a result of capillarity and adhesion. Capillarity is effective only in openings of certain size. The effect of grain size on percentage of oil retained is illustrated in Figure 5. Apparently sand finer than 30 mesh may retain important amounts of oil by capillary action, after all normal drainage due to gas pressure and gravity has ceased.

The mineral grains composing a sand present an enormous surface to the oil, so that considerable quantities of oil are retained by adhesion. Oil has the property of wetting rock surfaces, and the film of adhering oil left on the surfaces of the sand grains represent an appreciable and inevitable loss. Computations based upon the assumption that the sand grains are perfect spheres indicate that for 10 to 20-mesh sand about 836 square feet of rock surface is in contact with the oil for each cubic foot of oil sand. The areal surface increases as the size of the grain decreases, 50 to 60-mesh sand presenting a surface of more than 3700 square feet per cubic foot of sand. The viscosity of the oil determines the thickness of the oil film left on the sand. If this film is only 0.0002 inch thick, as much as 16 per cent of the oil necessary to saturate the voids will be retained in forming the adhering film on 50 to 60-mesh sand. These films are impossible to remove by any known method short of actually mining the sands, disintegrating them, and subjecting them to the action of solvents or distilling temperatures. The percentage of oil retained by capillarity and adhesion marks the lower limit of possible recovery by drainage into wells.

While Washburne, McCoy and others have made important contributions to our knowledge of capillarity and its influence on oil accumulation, there is still opportunity for a great deal of experimental work in determining just how important a role capillarity plays in oil drainage. To what extent do different crude petroleums vary in surface tension? In what sizes of openings is capillary force effective in the case of viscous oils? Is it a force which under all conditions opposes oil drainage, or may it sometimes assist in the accumulation of oil in partially drained sands? How rapid is capillary movement of oil in sands and over what distance may its influence be exerted? May water-wet sands exert capillary influence on oils, and to what extent may oil in oil-wet sands be displaced by water under the influence of capillary force? Again, in the case of adhesion: To what extent does the thickness of the adhesive oil film vary with differences in the viscosity of the oil and with differences in the character of the mineral-grain surfaces? What proportion of the original oil content will be retained by adhesion for sands of different grain size? The greater of the percentage of the oil retained by capillarity and adhesion, the lower will be the percentage recovery possible—a factor of considerable importance in determining the economic spacing of wells.

Influence of oil viscosity—The influence of oil viscosity upon the resistance to movement offered by the sand pores and upon the thickness of the adhering films has already been

[1]A. F. Melcher, "Determination of Pore Space of Oil and Gas Sands," Transactions, American Institute of Mining and Metallurgical Engineers, Vol. 65. pages 469-97.

[2]F. H. King, "Principles and Conditions of the Movements of Ground Water," U. S. Geological Survey, Ann. Rept., 1897-98, Part 2.

[3]C. S. Slichter, "Theoretical Investigation of the Motion of Ground Water," Nineteenth Annual Report, U. S. Geological Survey, 1897-98, Part 2.

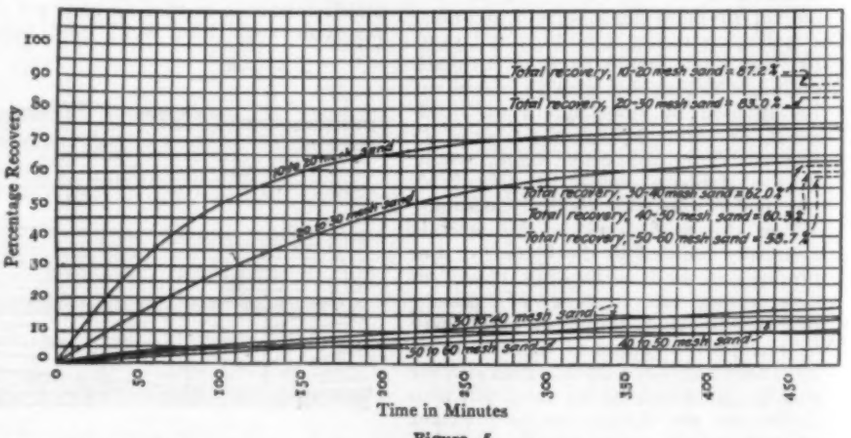

Figure 5
Graphs showing influence of size of sand grains on retention of oil, using 19 degree Baume California residuum fuel oil.

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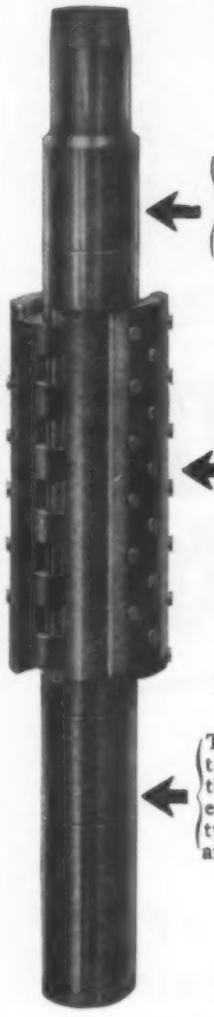
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mentioned. Oils of low viscosity are able to move much more freely through a granular rock than are the more viscous oils, and hence the character of the oil influences to some extent the distance apart at which wells may be profitably spaced. Variation in rate of movement of oils of different viscosity is illustrated in Figure 6. In this connection it should be pointed out that ground temperatures have an important bearing upon oil viscosity. A remarkable decrease in viscosity will often be produced by 50 or 100 degrees increase in Fahrenheit temperature. It is well known that at the depths from which many oil wells produce today, ground temperatures are materially higher than they are near the surface, and due account must be taken of the effect of this elevated temperature in any study of oil viscosity. Recent publications of the United States Bureau of Mines have given us a great number of viscosity determinations of crudes from the various United States fields, but information on prevailing ground temperatures in the productive horizons of our oil fields is notably lacking.

The influence of the diameter of the well[10]—The rate of production and ultimate production of a well will increase as its diameter is increased. More than half of the energy necessary to force oil from the perimeter of the drainage radius of a well is consumed in moving the oil through the last 10 feet in the immediate vicinity of the well. This is due to the greater speed with which the oil must move as the flow cross-section decreases. At the walls of a 6-inch well, for example, the oil is flowing through the sands forty times as fast as it is at a distance of 10 feet from the axis of the well. The writer has proposed a method of forming a cavity about the well within the oil sand to take advantage of this increased production resulting from increased wall area, and has shown that if such a cavity 20 feet in diameter could be formed and maintained about a well, its rate of production would be more than doubled. This would permit of wider spacing of wells, and would accomplish a more complete extraction of the available oil.

Influence of the depth and thickness of the productive sand—The depth of an oil deposit below the earth's surface influences the economic spacing in two ways: Depth adds directly to the drilling and operating costs, an influence which in most cases is partially offset by the greater oil pressure characterizing the deeper deposits. Greater pressures would normally indicate more complete recovery of the available oil, but this advantage is more than counteracted by the rapid increase in the cost of development and operation with increased depth; hence deeper production in nearly every case will prescribe wider spacing of wells.

The thickness of the reservoir rock determines, along with its porosity, the space available for oil storage, and has therefore a direct bearing upon the selection of a proper interval between wells. As the thickness of the oil sand increases, so will the ultimate production per acre increase, and the greater this latter factor, the greater will be the number of wells that a given acreage will support.

A mathematical formula for computing production of a well—Careful study of the factors thus far discussed indicates the existence of a definite relationship between them, and suggests the possibility of developing a formula embodying the several physical variables, which would enable us to predict the production of a well under any given conditions. This has been attempted by Slichter, D'Arcy, Hazen and others who have offered various formulas for use in computing the flow of water through the sands. The formulas deduced by Slichter[11] would appear to apply equally well in the computation of oil flow, since they contain a variable representing the vis-

[10] L. C. Uren, "Increasing the Production of Petroleum by Increasing the Diameter of Wells," Trans., Amer. Inst. Min. Met. Eng., Paper No. 1364-G, September, 1924.

[11] C. S. Slichter, "Theoretical Investigation of the Motion of Ground Waters," Nineteenth Annual Report, U. S. Geological Survey, 1897-98, Part 2.

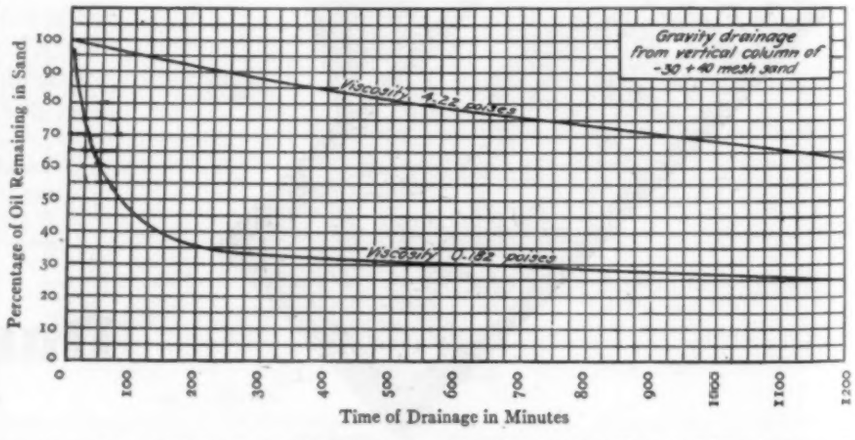

Figure 6. Graphs showing influence of viscosity on rate of drainage of oil from sands

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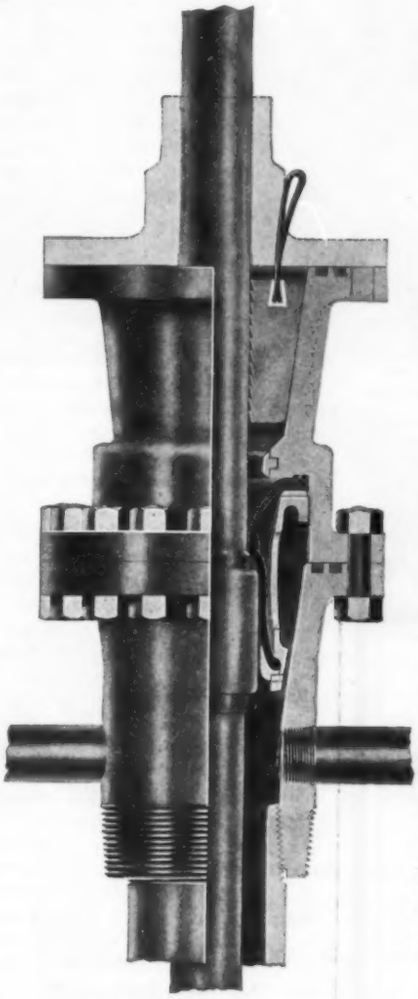

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cosity factor. Following is one of the formulas developed by Slichter for computing the flow of oil through tubes filled with sand:

$$Q = \frac{0.2012\ pd^2s}{uLK}, \qquad (1)$$

in which Q is the quantity of fluid flowing in cubic feet per minute; p is the pressure drop, expressed in feet of water; s is the area of cross-section of the tube in square feet; d is the "effective diameter" of the sand grains, measured in millimeters; u is the absolute viscosity of the fluid in poises; L is the length of the drainage channel in feet; and K is a constant depending upon the porosity of the sand. It appears from Slichter's results that the constant K in equation (1) varies markedly with the size of the sand grains. Adopting a new symbol o to represent the percentage porosity, K will vary as some function of o; that is, $K = Co^x$. From the data of Table III of Slichter's "Field Measurements of the Rate of Movement of Underground Waters,"[12] it is possible to develop an exponent for o, which enables us to re-write the foregoing equation as

$$Q = \frac{Cpd^2so^{3.3}}{uL}, \qquad (2)$$

in which C is a constant.

[12]U. S. Geological Survey Water Supply Paper 67.

If we now assume L to be the radius of drainage of a well, R the radius of the well, and T the thickness of the oil sand from which it produces—all expressed in feet—we may integrate equation (2) to find an expression representing the pressure loss suffered by oil in flowing into a well from the surrounding drainage area. The result will be an equation of the following form:

$$p = C \log_{10} \frac{L\ QU}{R\ td^2o^{3.3}}, \qquad (3)$$

C being a constant differing from that in equation (2).

Most geologists would be unwilling to admit that the physical factors involved in oil drainage are sufficiently uniform and measurable to be placed on a mathematical basis. It must be admitted that while continuous sand strata of uniform texture and considerable thickness are occasionally found, the productive sands are more frequently a part of a productive "zone" in which relatively thin oil-saturated sands are interstratified with thin and more or less impervious layers of shale. The sand strata, furthermore, are not always continuous over great distances, but are frequently lenticular, or they show a tendency to "pinch out" or merge into layers of less porous materials.

Many authorities picture the drainage of oil from the sand as occurring along irregular, dendritic lines or channels determined by the position of the coarser sands which offer the least resistance to flow. Movement of the oil, it is claimed, will be largely influenced by crevices marking the position of bedding-planes and other structural irregularities. The writer prefers to regard drainage as occurring through sheet openings of considerable width rather than through narrow channels.

Such conditions as have been described above make the analysis of the oil-drainage problem exceedingly complex, and to practical-minded investigators, often seem to exclude consideration of theoretical deductions of the sort forming the main theme of this paper. While such conditions are known to influence the drainage of oil to an important degree, it may be argued in favor of the academic concept of a perfectly uniform, continuous sand reservoir that such an ideal represents the condition under which the maximum beneficial effect of the expulsive forces would be secured. Admittedly, lack of continuity and variation in texture of the sands would influence this ideal result, but as a measure of the maximum drainage effect possible under a given set of conditions, a study of the results obtained under the ideal condition is surely worth while.

Whether or not we are willing to agree that the variables involved in oil drainage may properly be reduced to formula, careful study of such a formula as formula (3) above discloses certain relationships that are not so readily deduced by other means. It is made apparent, for example, that the area drained by a well is not constant, but varies with the pressure existing within or behind the oil, and with the rate of flow of the oil. Other factors remaining constant, the radius of the drainage area will decrease rapidly as the pressure declines. It seems that a well should attain its maximum radius of drainage soon after completion, but thereafter it suffers a gradual decline in its radius of influence; hence a suitable interval between wells today will be too great a year or so hence when pressures have declined to lower levels. The computations should be based upon the estimated average pressure during the productive life of the field.

Before such formulas as those presented can be applied in a practical way, additional data will be necessary. What is a suitable value for the constant C in equation (3)? How is the formula influenced by depression of the fluid surface in the productive sand in the vicinity of the well? The formula is deduced from considerations pertaining to an oil-saturated sand. To what extent may it apply in a partially exhausted sand? How is the formula modified by well interference, when, for example, one well is drilled within the radius of drainage of another?

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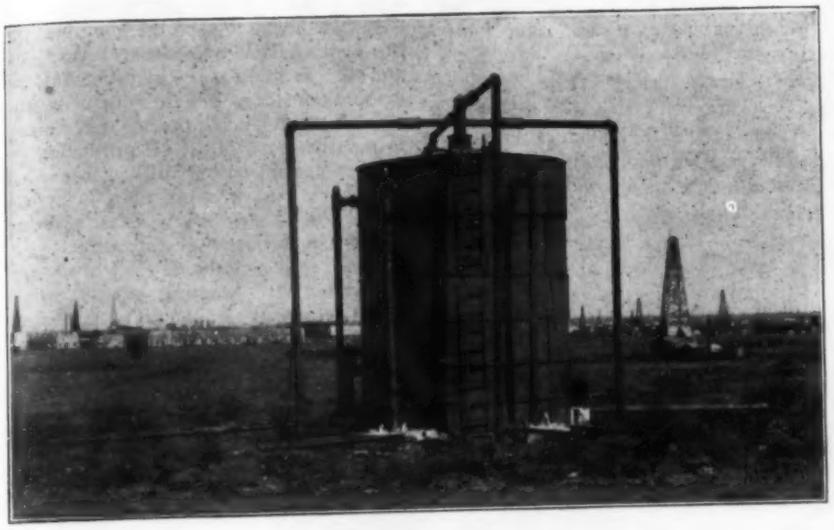

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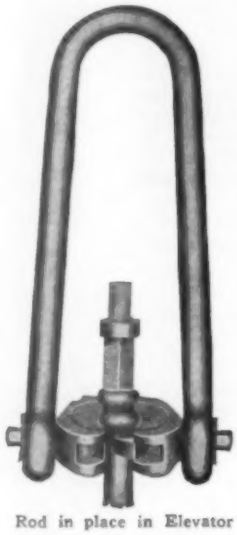

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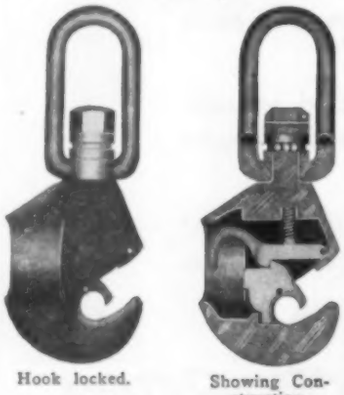

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ture has not been given consideration in the development of the foregoing formulas, its influence must be taken into account in the final analysis. Wells may be more widely spaced in the direction of the dip than in the direction of strike if the force of gravity has any significance. On the other hand, steeply inclined structures dictate a closer spacing because of the greater volume of reservoir rock per acre. Local irregularities in structure creating especially favorable conditions for oil accumulating will suggest a closer spacing. The presence of two or more productive sands or zones superimposed one over another will present conditions requiring a decision between the two alternatives of drilling a separate series of wells to produce from each sand, or of producing from one sand at a time and progressively deepening the wells as the upper sands become exhausted. It is seldom that wells may produce from more than one zone at a time, due to differences in pressure in the different zones, or to the presence of intermediate water sands. The static head developed within the well by oil from the upper of two zones would in most cases be sufficient to prevent any flow into the well from the lower zone.

The factors thus far discussed are all physical variables which determine the quantity of oil that we may secure under a given spacing and arrangement of wells. If we were fully informed on the quantitative effect of each of the several factors, and their influence one on another, we should be able to predict the amount of oil that a given property would produce for different assumed intervals between wells; and further, we should be able to determine the amount of oil likely to be produced during each year of the productive life of the property. With such data before us, however, the problem of well-spacing is only half solved, for we must still give consideration to the economic factors involved.

Economic Factors

The value of an oil property is limited by the discounted or present-day value of future profits derived from the sale of its product. Profit is the difference between income from the sale of product and the cost of production. Income is determined by multiplying the volume of production by the selling price per unit of volume. The cost of production is made up of several elements, including the cost of acreage, the cost of development, the cost of plant and physical equipment, and the cost of operation. All of these are important factors in determining the economic spacing of wells. The oil recovery obtained from the property will also be dependent upon certain other economic factors, such as the efficiency of operating the wells and the competitive conditions attending development and production.

The interest-earning capacity of money influences the spacing of wells in two ways: (1) it operates to reduce the apparent value of future income in the computation of present-day values, and (2) is a measure of what the investor considers a fair return in the way of profit on his capital investment. Money invested in the oil-producing industry should command a somewhat higher rate of interest than is appropriate for the ordinary manufacturing enterprise, because of the greater element of risk involved. Oil-producing properties are wasting assets which must return their capital cost before any profit can be said to result. Each oil company dividend is a return of both principal and interest.

At interest rates of 10 or 12 per cent —rates considered appropriate for partially or even fully developed oil properties—the present value of future expected profits diminishes rapidly. A dollar due five years hence, discounted at 10 per cent, is worth only 62.1 cents; if it is to be received ten years hence, it is worth only 38.6 cents; and if discounted over a twenty-year period, its present value is only 14.9 cents. Because of the loss occasioned by delay in realization on the value of the oil in the ground, every effort must be made to produce and market the maximum quantity of oil in the shortest possible time. This cost element, which we may call the "interest cost of deferred production," therefore favors closer spacing of wells; but, after a certain point, it is offset by the increased interest charges on the capital investment involved in drilling and equipping the greater number of wells, and by their increased operating cost. There must be a certain economic number of wells for any given rate of production for which the algebraic sum of the different cost elements will be a minimum.

The cost of production—In addition to the operating charges, the cost of production properly includes depreciation charges, representing the cost of physical plant, and depletion charges designed to redeem the cost of the land and its development. If wells are deep, drilling costs and operating costs will be higher than in shallow territory. The cost of physical plant on an oil lease increases with the number of wells. Higher oil-production costs, irrespective of the cause, favor wider spacing of wells, that is, in deep territory where production costs are relatively high, wells must be spaced at greater distances apart than in the case of shallow wells, other factors remaining constant. If sufficient comparative cost data are at hand, it should be possible to estimate closely the unit cost of production for any as-

(Continued on page 74)

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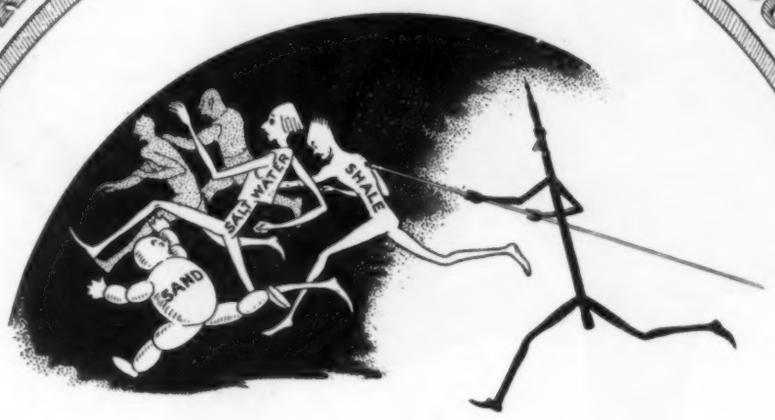

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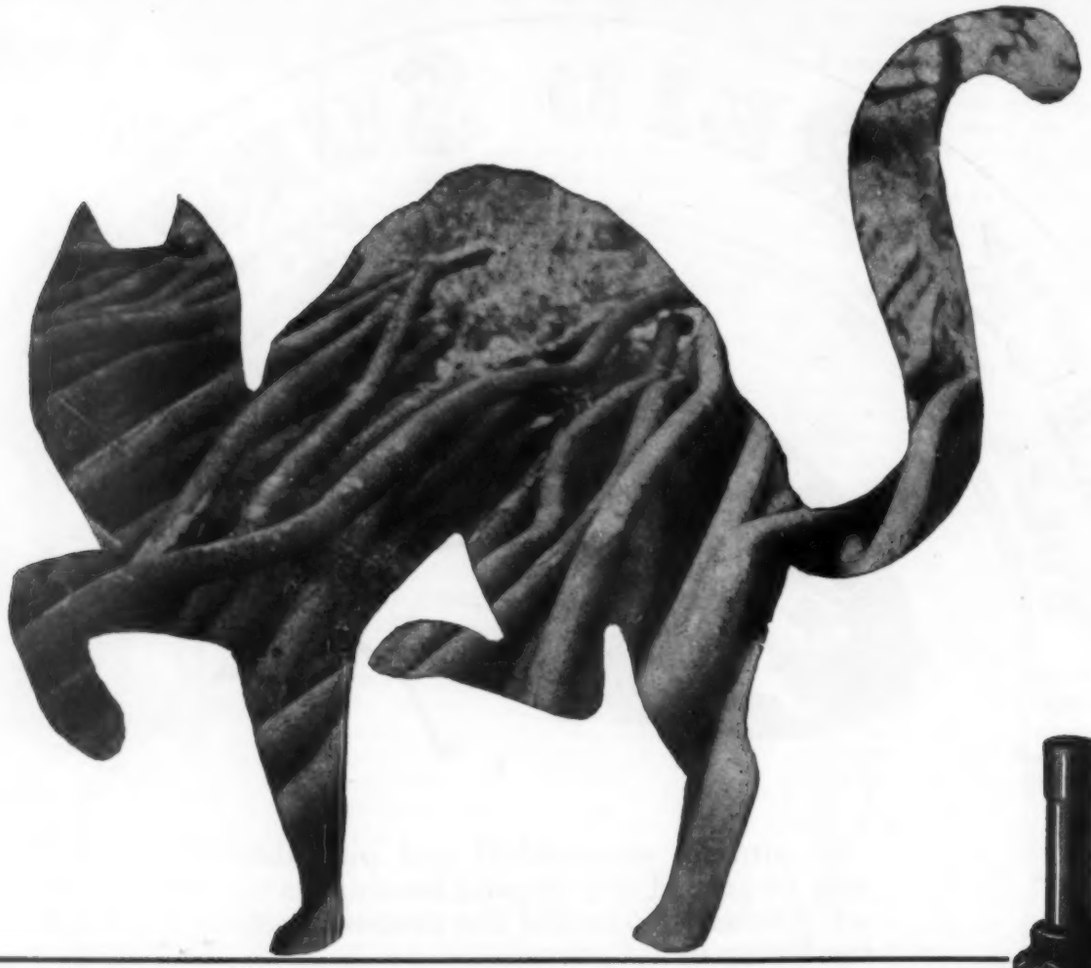

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Prairie Price Change Surprise in Oklahoma

Braman wells fail to come up to expectations; State production continues going downward

By W. Lee Sloan
Staff Representative

Tulsa, Okla.—Perhaps the failure of five wells in the Braman townsite was partially responsible for the action of the Prairie Oil & Gas Company in posting a new price on Mid-Continent crude oil. It is obvious that this had some effect upon the situation.

The increase in price and the creation of new grades in the new schedule of the Prairie Company came as a surprise to operators in Oklahoma. Less than a month before, officials of the same company had warned the Oklahoma operators that they were going too fast and that it would be necessary to make some kind of an alteration if operators continued their record-breaking campaigns of a hundred new wells each week. When the operators responded two weeks ago with a deduction of 45 new wells from the previous week's total, the Prarie immediately made an upward adjustment in their price paying.

The failure of the Braman wells and the fact that the small purchasers were vying with each other in paying premiums for the higher grades of oil were the two outstanding incentives for this increase. Today the situation is more optimistic than it has ever been heretofore during any previous summer.

Braman Discovery Well Profitable

The last 15 days of June the Braman townsite discovery well, the Herbert Oil Company's No. 1 Community, produced 32,212 barrels of 43 gravity oil. The latest gauge of the well shows it to still be making approximately 5000 barrels per day. But the second and third well for the townsite did not come anywhere near reaching the total of the pace-maker. No. 2 Community drilled into water and has been plugged back for a small producer while the Stanley and Jones No. 1 Community well on lot 23, block 2, is another disappointment. Finding the sand from 2392 to 2393 feet, the well filled up with water when drilled one foot deeper.

Locations Shut Down at Braman

Fifteen locations are shut down at Braman, thirteen bein on the townsite and two adjacent to it. Decision to cease drilling followed the drilling in of the Stanley and Jones water well. It is reported that the operators in the townsite have now made up a fund to carry the Stanley and Jones well down to the Wilcox sand for a test. Evidently these 15 wells will remain shut down until the test is made or some other well follows the discovery freak well. Another well in the townsite which is slated for a water well is the Mead Brothers test in block 5 which is drilling into water in the Stainaker sand at 2400 feet.

Burbank Takes First Place

From the production tables of the major fields of the state it will be noticed that the Burbank field has again taken first place for the first time in many months, supplanting the Tonkawa area which for more than eight months was the leader in Oklahoma production. For the past week the Burbank field produced 55,818 barrels for a daily average while the Tonkawa field was contributing 55,349 barrels for the same average. Total production for the entire state dropped more than eight thousand barrels during the past two weeks.

Another producing sand was added in the Garber field when the Cosden-Marland No. 41 School land well came in during the past week for a 600 barrel well from 3598 feet, in what has been correlated as the Layton sand. This well is located in the southeast corner of section 13-22-4w, a north offset to the Belveal No. 25 of the Sinclair Oil & Gas Company which opened up the new Wilcox sand producing area for the field but which failed to produce in the Layton sand. The log of the Belveal well shows a hole full of water with a show of oil at the depth which the Layton sand was found in the Cosden-Marland well. The Roxana Petroleum Company's No. 2 W. Schroeder in the center of the northwest of the southwest of the southwest of section 18-22-3w is now standardizing at 3687 feet after drilling for the Wilcox sand to that depth with rotary tools. The Roxana well is running 71 feet higher than the Belveal 25 according to the log of the well.

Permits Increase Again

The starting of a number of wildcat wells in north central Oklahoma and the spudding in of Wilcox tests in all parts of Kay and Noble Counties, is responsible for the total number of new wells reaching 98 for the past week. This number is 28 more than the total for the previous week.

F. R. Billingslea's No. 1 Rogers, in the southeast corner of the northwest of section 3-15-7 in Creek County has found a deep sand at 4056 feet and the hole filled up 1400 feet with oil. The bit is said to be in a very hard formation and drilling deeper is going ahead cautiously for fear of losing the potential deep producer.

Big Gas Well for Otstot

In the Otstot pool northwest of Blackwell, the Tidal-Osage Oil Company's No. 1 Laughlin, in the southeast of the west half of the southeast of section 8-21-1w, is making 23 million cubic feet of gas from the top of the sand at 3465 feet. This is the first gas well this company has completed in the pool and it is estimated by drillers to be good for from 35 to 40 million cubic feet of gas when completed.

Two interesting completions for Creek County are the well of T. E. Mann and H. U. Bartlett in their No. 1 Maxey at the southwest corner of the northeast of section 5-19-8 and the Gled Oil Company's No. 1 Harjo at the southwest corner of the northwest of the northwest of section 13-19-8. The first well has a hole full of oil after giving it a 150 quart shot at 2032 feet and the second well has a good showing of oil with 1,500,000 cubic feet of gas at 2117 to 2154 feet. On the Gled well the drilling machinery was destroyed when the gas was ignited.

One of the largest gas wells ever completed in Kay County is that of H. M. Andrews, just east of the corporate limits of Braman. The well found the big gas pay at 1560 feet and produced at the rate of 34,000,000 cubic feet per day. The same gas was found in the Herbert Oil Company's discovery well but not in such a large quantity. The Wentz Oil Corporation of Ponca City is drilling a well nearby.

New Test Near K-D Well

A drilling permit has just been issued to the Champlin Refining Company of Enid for a deep test on the Shoop farm in the northwest quarter of section 26-22-2w, which is not far from the completion of the K-D Oil Company's mile deep well in Noble County. The test will be watched with considerable interest on account of the fact that it has a possibility of being a defining factor in the producing limits of the new potential deep pool in that township and range of Noble County. A well drilled in 1918 on this same farm has five oil and gas showings above the 2500 foot mark which was the total depth of the well. The log of this previous well will be of great value on the Champlin test.

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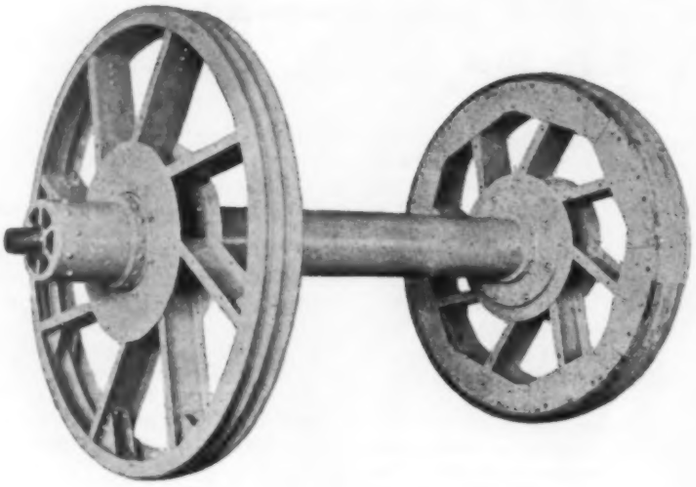

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Showings Favorable for New Pools in Young County

Wichita Falls, Texas.—Flowing steady at the rate of 800 barrels daily, the Litchfield and Murchison-Fain Oil Company's R. Campbell 8-D set up a new record for initial production in the Litchfield-Carpenter pool in upper Young County early this week after drilling 29 feet of sand pay to a total depth of 994 feet. This well is located in the northeast extension of the main pool, and is a south diagonal offset to a 625 barrel well completed several weeks ago from the same producing horizon by the Plains Production Company. The two companies mentioned above, Humble and the Kentucky Oil Corporation are the principal owners of the nearby leases.

Favorable oil showings developed during the past week from shallow sands encountered by two wildcats in upper Young County give promise of opening new pools. Clifford Mooers et al's J. R. Jackson 1, located about 2500 feet southeast of the Ickert pool on the Archer-Young County line, is reported with 350 feet of oil in hole after drilling through oil sand at 1206-09 feet into shale at 1209-15 feet, while Minnich and associate's Stewart 1, located in the north central part of the David Dawson survey, abstract 76, in the northeast part of the county, is estimated good for 15 barrels daily from broken oil sand at 860-61 feet and 863-68 feet. The completion of this well has been delayed by the loss of the sand pump in the hole.

The recently discovered Norday pool in southwestern part of Archer County bids fair to become the next flush area in the county by reason of the large flush production registered by the first group of completions made during the past week. J. J. Perkins et al's J. L. Anderson 1, lot 22, extended the producing area a short distance to the east of the Norday Oil Company's discovery well, with an initial output of 550 barrels from sand at 1415-21 feet, while the Empire Gas & Fuel Company's J. L. Anderson 1, located south of the discovery, swabbed and flowed at rate of 450 barrels at 1415-23 feet. Empire has two other tests on the sand, and is making locations to develop its lease in short order. The Norday Oil Company's Anderson 2 is showing for 250 barrels while rigging up to pump from sand at 1416-21 feet. The Texas Company's Anderson 1, located about 1000 feet northeast of production, tested dry in sand at 1431-33 feet, although the top of the sand was well saturated, and is now doubtful of making a producer. Weldon et al's Anderson 1, located a short distance south of the original well, is reported to have swabbed about 25 barrels after drilling one foot in to 1426 feet, and will core deeper, as no water is showing.

Establishment of two shallow oil producing horizons near a wildcat oil producer in Wilbarger County during the past week will have a stimulating effect on the development of nearby leases. Gulf's Waggoner 2-R, located in northeast quarter of section 50, block 14, and

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offsetting the discovery well in the 1790-foot pay, swabbed 175 barrels of oil in 12 hours after drilling sand at 1514½-17½ feet. Humble's Waggoner 1-D, located in the northwest quarter of this same section, has been completed as a 175 barrel pumper from sand at 1300-14 feet, thereby making three separate oil producing horizons available in this new pool, which is nestled in a group of old dry holes having numerous showings of oil and gas. This pool is about five miles east and slightly south of the Vernon area.

Deeper drilling on the Schimmel Oil Company's wildcat oil producer on the R. W. Kelly land in southwestern Throckmorton County, which was reported in these columns last week as a small well, has increased the production to about 150 barrels daily, and the Humble Pipe Line Company is building a four-inch line from the Masters pool in the eastern part of the county to purchase the oil. This well is located near the east central part of section 31, Comanche Indian Reserve, and encountered the top of the lime at 2985 feet. The hole was deepened to 3003 feet late last week, resulting in a gain in output. The oil tests 39-40 gravity. The owners have set up three 500 barrel tanks, and Humble is moving in a 1600 barrel tank to store the production until the pipe line is completed.

United N. & S. Continues Deep Drilling at Luling

Luling, Texas.—Believing that production in the Edwards lime in the Luling field is coming from a deeper mother pool, United North and South Oil Company has spudded in two more deep tests making four wells drilling to the lower formations.

The company's first deep well was the Hardeman No. 1 which found showings. Later the Tiller and Kelly deep tests were started. These wells also found showings at around 5000 feet, but were not completed as producers. These wells are still drilling around 5500 feet in hard formations.

During the last few days, the company has started wells on the R. S. Shanklin and C. H. McKinney tracts, farther to the southwest. In addition the company has purchased many leases and royalties around the town of Prairie Lea and over into Guadalupe County across the San Marcos river

The contracts made by the company called for royalties after 2500 feet only, while the average depth of the field is 2100 to 2200 feet.

Operators have furthered their belief of deep oil by the fact that production in the field is holding much better than most fields. They believe that the oil is seepage from a big pool below it.

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Prices in Mexia-Corsicana Field Create Demand for Gas Tight Tanks

Corsicana, Texas.—The North Currie pool, which is the youngest and the sixth discovered to date in the Mexia-Corsicana Woodbine sand district, developed its first salt water trouble late last week when Barkley & Meadows' discovery well on the Hilburn 15-acre lease and an offset began showing about seven per cent water. These two wells are making 44½ gravity oil from the regular Woodbine sand pay at 2990 feet, with a combined output of about 225 barrels daily. Barkley-Meadows' Hilburn 3, located south of the discovery well, drilled into salt water at 3009 feet early this week.

The largest oil producer completed in the North Currie pool was brought in late last week, being the Sun Oil Company's Hilburn 2-A, making 250 barrels of 37½ gravity oil and three million cubic feet of gas from sand at 2960-73 feet followed by broken oil sand at 2973-88 feet and hard sand at 2988-93 feet. This well is a north offset to the discovery well, an tdhe difference of seven degrees in gravity is due to the latter well having drilled into a second layer of oil sand, which was already known to exist in the field. Gulf's Hilburn 2, located a short distance further northeast, came in early this week with an initial production of 190 barrels of 37½ gravity oil with a total depth of 3003 feet. The Sun Oil Company's Hilburn 2, located west of the discovery well, is swabbing 90 barrels of 44 gravity oil from sand at 2979-94 feet.

Chapman-Strotman et al's Ebb Bounds 1, which was reported last week showing gas after drilling to sand at 3105-27 feet, has been deepened 10 feet and is now showing for a small high gravity oil pumper with fair gas pressure. This well is more than one mile south of the producers in the North Currie pool, and is probably producing from a minor fault extending out from the original Currie field. The Texas Pipe Line Company, Pure and Gulf have made pipe line connections to wells in the North Currie pool, which is doing about 1000 barrels daily.

The adoption of Mid-Continent gravity schedules and prices by all crude purchasing agencies in the Mexia-Corsicana district late last week is the first time this district has been elevated to the Mid-Continent class, although Prairie and Sinclair have heretofore bought a limited amount of oil in the district on this basis. The producers are taking steps to guard their lease storage tanks against evaporation of the light ends of their oil in order to gain the highest price for their oil, and a number have announced that gas tight tanks would be used to replace present flow tanks, which are generally the old style of tank, owing to no inducement being made by crude buyers to portect the gravity of the oil.

The Wortham field is accounting for the greater part of the decline in daily production of the Mexia-Corsicana district, which averaged 108,878 barrels daily during the month of June from 1725 wells, or an average of 63.11 barrels per well per day. During May this district averaged 123,970 barrels daily from 1705 wells, or 72.7 barrels per well per day.

The number of wells and average yield per day by fields is shown below for the month of June:

Field	No. Wells	Daily Prod. per well
Corsicana-Powell*	795	62.79
Wortham	321	110.74
Mexia	458	41.38
Richland	95	43.29
Currie	56	22.14

*Includes shallow tests completed in vicinity of deep producers.

New Wildcat Locations In West Texas Section

San Angelo, Texas.—Magnolia Petroleum Company acquired its first oil production in West Texas last week through the purchase of Morrison & Thompson's 125 barrel pumping well on the C. M. Adams land in the Westbrook field, Mitchell County and approximately 1460 acres of proven and semi-proven leases for a total consideration of $175,000. This deal involves a cash payment of $125,000 and $25,000 to be paid upon the completion of a drilling well on the G. W. Womack land by the Morrison-Thompson Interests, while an additional $25,000 will be paid out of oil runs from the Womack well if an oil producer is obtained. The Westbrook field is maintaining a daily average of 2315 barrels of oil from 56 pumping wells and the crude is being purchased by independent refiners at Colorado and El Paso, Texas. Magnolia is drilling two other tests in Mitchell County, and is the third major company to obtain production in the field, as the California Company and the Tidal Oil Company are already represented with pumping wells.

R. G. Barnum, a pioneer wildcatter in the Panhandle district of Texas, and George A. Henshaw have taken a large drilling block in the lower part of Mitchell County, and will drill on the Scott Ranch in the southeast quarter of section 32, block 17, S. P. Railroad survey. Marcus Snyder and others of Colorado have made location to drill on the A. R. Keith land, section 10, and about half mile northwest of oil production in the Westbrook field.

New wildcat locations are being announced in greater numbers each week for the West Texas district centering around Crockett and Reagan Counties, and during the the past week two new locations were made in the latter county. Ely and others are to drill a deep test on the Noelke Ranch in the southwest corner of section 39, H. E. & W. T. Railroad survey, block GG, and in the west central part of Crockett County. The Marland Oil Company of Texas has made location for a deep test in the northwest part of Crockett County on the W. C. Corbett Ranch near the center of the southeast quarter of section 19, block B-2, G. C. & S. F. Railroad survey.

In addition to the above new location, Marland has announced that a wildcat will be started shortly on the M. J. Wilson land in the northeast corner of section 1199, C. C. S. D. & R. G. N. G. Railroad survey, or about six miles due north of the Big Lake field in Reagan County, while location has been made for a deep test on the Connell Ranch, center of southeast quarter of section 55, block 5, G. H. & H. Railroad survey, Garza County. Two wildcat locations for Marland in Glasscock and Howard Counties were announced in these columns last week, thereby making a total of five wildcats on schedule for West Texas, besides a partnership drilling test in Kent County. Marland has awarded drilling contracts to W. H. Dunning and Sam Knepley for its proposed wildcats in Howard and Glasscock Counties, and drilling will start befor the close of the first week in August, while the Crockett and Garza tests will start one month later. Marland has made a deal with New York financial interests to defray the cost of drilling these four tests, and bear the cost of assembling the drilling blocks, while Marland will retain 25 per cent of the lease blocks in checkerboard tracts in return for selecting the acreage and locations.

George McCamey and others have begun moving in materials for a 3500-foot test in southwestern Upton County on the Mrs. M. L. Baker land, section 8, E. C. Grooms survey, or about eight miles northwest of the town of Hurdle. Denny and associates have moved in star rig to drill shallow wildcat on the C. A. Broome land in Tom Green County, and location has been made in the northwest part of block 673, A. Wallstein survey.

The discovery oil well on the L. P. Powell ranch in north central Crockett County has not been given a full test on the pump, according to late reports.

New Jersey Company Adopts 8-Hour Day

New York, N. Y.—The Standard Oil Company of New Jersey announced Monday, July 13, its action taken in the adoption of the eight-hour day for field workers employed by the company, thus reducing the working hours from 12 to eight. Statements issued by the company concerning the reduction in working hours say that the 12-hour day has been the ruling in oil fields in this country since the drilling of the first well in 1859.

Action taken by this company through its subsidiaries in reducing the field man's working hours will necessitate employment of more men, thus greatly increasing the payroll since wages will not be cut in proportion to the cut in working hours. The Carter Oil Company announces that hereafter it will pay drillers $10 for eight hours' work. Their present scale is $12 for 12 hours. Tool dressers now receiving $10 for 12 hours, under the new ruling will receive $8 for eight hours work. Roustabouts and other workers will be placed on an eight-hour day without a reduction in wages.

Mountain Completions Make Record in June

With total of 165 new wells the month is a record for year, but initial is under May

By Brad Mills

Casper, Wyo.—Completions during the month of June in the Rocky Mountain region broke all previous monthly records for the year and probably for any past month, when a total of 165 wells were finished. The initial production of 17,390 barrels did not keep pace with that recorded in May, however, when 114 completions accounted for 21,505 barrels of new production. Of the total number of completions, 45 were dry or were abandoned for different reasons, three gas wells of over a million cubic feet were finished and 117 oil wells were recorded. The summary shows that 409 wells actually are in the process of drilling while 208 locations with rigs erected are shut down for various reasons. Although wildcat territory claimed a large number of the total tests, wells actually drilling fell heavily under the fields listed as proven.

The Midwest Refining Company, operator of section 36-40-79, which is owned by the State of Wyoming, and regarded as one of the best sections in the Salt Creek field, has succeeded in bringing in its 6L test on the northwest quarter of the section, at a depth of 2485 feet. This is the first Lakota sand test on this remarkable lease and adds materially to the value of the state-owned lands. The well has not been officially tested, but is variously estimated at 1000 barrels to 2500 barrels daily. Several flows were made by the well, but the oil will not be used in the immediate future.

The deep test of the Continental Oil Company, located on the southwest quarter of section 2-39-78, Salt Creek field, was shot at 2870 feet and showed enough oil to be rated as a commercial producer from what is supposed to be the Morrison formation. This sand proved to be only 10 feet thick. The test will be carried to deeper sands since the gas pressure in the Morrison formation was not sufficient to cause the well to flow. Very little is known of formations deeper than the Morrison in the Salt Creek field. Some deeper tests were made several years ago but the facts disclosed were not made public. The oil possibilities of the deeper sands are regarded as favorable, however.

Marine Oil Company is abandoning its No. 8 well on the Pilot Butte structure. Officials announced that a small amount of gas was found at about 1000 feet. In drilling the test deeper, water encroached and the gas practically was drowned. This field is producing oil but the wells are small.

The Texas Production Company is meeting with fair success in developing its Salt Creek holdings. Two wells were completed during the week on tracts owned by this company. Well No. 34A, southeast quarter of section 19-40-78, came in with an initial production of 100 barrels, and No. 23, located on the same quarter section, is rated at 75 barrels. This company is drilling five other wells in the Salt Creek field.

The Casper Oil & Syndicate's test just outside the city of Casper, section 23-33-79, is drilling at 3480 feet with the third Wall Creek the immediate objective. Little encouragement was found in drilling

RESUME OF DRILLING OPERATIONS IN ROCKY MOUNTAINS JUNE, 1925

Wyoming

Fields—	Rigs	Drg.	Comp.	Dry	Prod.
Baxter Basin	2	0	0	0	....
Big Muddy	2	2	0	0	....
Big Horn Basin	6	8	3	2	gas
Carbon County	4	6	5	2	*480
Elk Basin	3	2	2	0	180
Fremont County	5	7	2	1	20
Grass Creek	3	6	2	0	225
Lance Creek	4	2	0	0	....
Natrona County	4	6	2	1	200
Osage	4	10	4	0	130
Rock River	2	3	1	0	90
Salt Creek	24	74	64	2	* 4,300
Teapot	18	0	0	0	....
Miscellaneous	22	56	5	5	....
June totals	103	182	90	13	5,525
May totals	113	146	57	11	5,225
Net gain or loss	— 10	36	33	2	300

Montana

Kevin-Sunburst	29	43	37	10	9,460
Cat Creek	4	8	5	2	80
Miscellaneous	18	32	7	6	50
June totals	51	83	49	18	9,590
May totals	41	77	38	14	14,600
Net gain or loss	10	6	11	4	— 5,010

Miscellaneous States

North Dakota	2	2	0	0	....
South Dakota	2	2	1	0	gas
Western Nebraska	2	1	1	1	....
Western Kansas	8	27	6	2	800
Idaho	2	2	0	0	....
Nevada	2	2	0	0	....
Utah	9	17	1	1	....
Colorado	15	50	8	6	1,100
Arizona	2	3	1	0	5
New Mexico	10	38	8	4	370
June totals	54	144	26	14	2,275
May totals	60	116	19	10	1,680
Net gain or loss	— 6	28	7	4	595

Summary

Wyoming	103	182	90	13	5,525
Montana	51	83	49	18	9,590
Other states	54	144	26	14	2,275
June totals	208	409	165	45	17,390
May totals	214	339	114	35	21,505
Net gain or loss	— 6	70	51	10	— 4,115

*Gas well in each field.

through the upper formations. The log of the well has been checking closely with those of wells drilled in the Big Muddy field, 20 miles east.

The Texas Production Company has announced that it will drill a wildcat test near Rex Lake structure, section 13-17-76, the structure having been previously tested to a depth of 3400 feet by interests affiliated with the Royal Dutch Shell. The first test was abandoned by the foreign interests because of various complications.

Considerable significance is attached to the refusal of Federal Judge T. Blake Kennedy to allow a rehearing of the Teapot Dome controversy. It means, those interested in the defense say, that the attorneys for the government virtually admit they are not satisfied to let the testimony brought out in the first hearing go to the higher courts. Although no actual development of any sort is taking place at Teapot Dome, the Mammoth Oil Company has been busy keeping the camp, etc., in trim for a development campaign in the event the case is decided favorably for them in the higher courts.

The Midwest Refining Company has completed its No. 36 well in the Little Buffalo basin as a 27,000,000 cubic foot gasser at 1328 feet. The test is located on section 1-47-100.

Ten completions were recorded during the past week in the Kevin-Sunburst (Montana) field, nine of these being producers. A total of 43 wells are drilling, while 29 derricks are on the gound in addition to actual tests. Many of the major oil companies are pushing their development program to the limit in an effort to complete the allotted number of wells before early winter.

Officials of the Midwest Refining Company are negotiating with the Union Oil Company of California with the view of renewing a contract whereby the former will get the oil from the Fort Collins field as it has done in the past by the provisions of a temporary agreement reached last fall but now about to expire. If an agreement is reached the Fort Collins oil will go to the Continental Oil Company refinery at Florence, Colorado, in return for Continental oil from the Salt Creek field.

The Ohio Oil Company has abandoned its No. 1M, section 1-19-26, Artesia field, New Mexico, at 3055 feet after little encouraging formations had been encountered. This company is one of the pioneers of the New Mexico field.

The so-called "fence post hole" recently drilled in Arizona seems to be an oil well without question. The well is only 14 feet deep but is making five barrels of very high grade oil daily. First reports were to the effect that at one time an oil tank sat near the spot and had leaked the oil. More recent reports tended to confirm the first rumors that a shallow pool has been found. There is an unprecedented demand for the crude, due to the scarcity in that region. The exact sectional location has not yet been learned.

Light Oil Found in "Deep Sand" Well at Smackover

El Dorado, Ark.—Smackover afforded still another surprise last week when light oil was discovered in the deeper sands of the heavy oil district, around Norphlet. Discovery occurred in the Page Oil Company's well No. 5 on the T. D. Murphy lease, in section 7-16-15, in the western part of the so-called East Field, or heavy oil district. The well is flowing at the rate of 150 barrels per day, through tubing and packer, from three feet of sand at a total depth of 2643 feet. Centrifugal tests show about 1 per cent b. s. At a temperature of 96 degrees, as the oil comes from the well, a gravity reading of 34 degrees is indicated. After making corrections for temperature, the true gravity is found to be 31.4 degrees, or about ten degrees higher than the highest gravity of oil heretofore produced in this vicinity.

Until now, light oil production has been confined to the West Field, around Louann, and only heavy oil has been obtained from wells drilled on the Norphlet Dome, which embraces the East Field. Accordingly, considerable importance has been attached to the discovery of oil which probably is of high gasoline content. If the light oil production is found at Smackover in the same volume as heavy oil has been developed during the last six months, the Smackover deep drilling boom might yet have a far-reaching effect on the general crude market. However, one swallow does not make a summer, and one well does not make a boom. A great many deep drilling operations are now in progress at Smackover, and the fertility of the Blossom sand discovered a few weeks ago may soon be known.

With one exception, the Blossom sand wells have not been as prolific as were the gushers completed in the Nacatoch and Graves sands. The exception noted above, the Houston Oil Company's Reynolds No. 3, was credited with an initial production of 10,000 barrels per day from the Blossom sand. Other recent completions from the same level have been limited to dry gas, or oil production of from 250 to 500 barrels per day. For example, the Standard Oil Company's H. Murphy No. 33, in section 4-16-15, is making 30 million cubic feet of dry gas from a total depth of 2525 feet. The Houston Oil Company's Laney No. 10, in section 31-15-15, is making 300 barrels of oil from a sand at 2,562-68 feet. The Gulf Refining Company's Scott No. 1, in section 34-15-15, is making 10 million cubic feet of gas and 200 barrels of oil per day from 22 feet of sand at 2595 feet. Other recent third-sand wells are of similar calibre.

As illustrating the effect of drainage from the Graves sand, it is noted that a number of recent completions at the 2400-foot level have failed to flow when bailed, making pumping rigs necessary at the start. Standard rigs, engines, tubing and rods are being installed as rapidly as possible under boom-time conditions, and the progress of this work has been reflected in the arrested decline of heavy oil production, as more and more wells are put on the beam.

The Blossom sand campaign, if there is to be any such, is still an unknown quantity, but the Graves sand boom may approach its close within the summer months. Leisurely drilling on non-competitive locations may continue throughout the year or longer, but, unless the Blossom sand pays off in gusher style, the great Smackover boom will end in time for the "boll-weevils" to return home and gather the current cotton crop.

A Deep Test at Stephens

Hude & Aarnes are rigging up to deepen their Brown No. 2, in section 13-15-20, of the Stephens field. It is said that a test of the Woodbine sand is in prospect, and that drilling will be continued to a depth of 3000 feet, unless oil or gas is found at a shallower level.

The Buffalo Oil Company, assured of production from its Morgan No. 1, a semi-wildcat located in Section 22-15-19, about two miles east of the Stephens field, has begun drilling in a second well on the same property. The first well is standing almost full of oil, while awaiting the installation of standard rig and pumping equipment.

Pan American Eastern Well May Top Production Record

Zacamixtle, Ver.—If the Huasteca Petroleum Company (Pan American Eastern) continues production from well No. 4, is is believed that that well, now the second largest individual producer in the world, may surpass the record of well No. 4, Potrero del Llano, of the Mexican Eagle, which produced 93,781,189 barrels from the time it was brought in in 1910, until it was closed because of salt water in 1918.

Cerro Azul No. 4, had up to May 1, 1925, produced 76,177,637 barrels and is averaging 6000 barrels daily production, which withdrawals could be increased if commitments of the company required. In one respect No. 4 has surpassed the record of the Potrero del Llano well in that the latter flowed but seven years before it started showing salt water, whereas the Cerro Azul producer, which was brought in in February, 1916.

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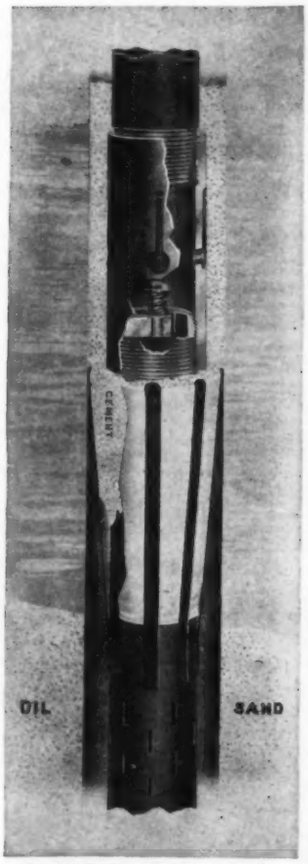
Lorraine Built

This is the way it looks on the outside.



But this is the "workings". Study this picture and you'll see why we call it "MAK-SHUR"

You can INSURE a perfect cement job with the "MAK-SHUR" CEMENT BARREL. You can set the casing at the bottom of the hole. Circulation can be established without moving the casing. The cement can be set at any point in the well with unvarying success. Perfect distribution of the cement is obtained, entirely around the casing. Perfect centering with equal space on all sides for the cement is positive. The cement can not "back up" in the casing under any circumstances. * * * Do you want anything more of a cement barrel? If so, just tell us, and we'll build it into this one, which is the last word in cement barrels so far.

The LORRAINE Corporation

110th and Alameda Streets,
Los Angeles, California

Mid-Continent Distributors:
The Crowell Company, 406 West First Street
Tulsa, Oklahoma

Export Distributors:
Buck & Stoddard, 30 Church Street
New York City

CRUDE OIL PRICE QUOTATIONS

Crude Price Changes

Effective July 10, Prairie Oil & Gas Company established new gravity scale in Mid-Continent, carrying advance in price. Their postings have been met by other purchasers and scale extended to fields in Texas producing oil of similar gravity.

Effective July 11, Ohio Oil Company advanced Lima, Indiana, Illinois, Princeton, Plymouth and Wooster ten cents per barrel.

Effective July 11, Canadian crudes were advanced 10 cents per barrel.

Humble Oil and Refining Company made some changes in postings on July 8, which were superceded when new scale following Prairie lead was established as of July 10.

Magnolia Petroleum Company announced changes on July 11 and again on July 13, making prices uniform with other purchasers except for price on low gravity as shown in table.

July 15.—Effective this morning the Standard Oil Company, Louisiana, posted a 15 cent advance on all grades of Arkansas and Louisiana crudes except Cotton Valley which was increased 10 cents and Smackover which was advanced 5 cents.

Current Postings

EASTERN STATES

	July 15 1925	July 19 1924
New York Transit	$3.90	$3.25
Bradford (Pa.)	3.90	3.25
Gains	3.45	...
Other Pa. Grades	3.75	3.00
Cabel	2.35	1.60
Ragland	1.30	1.00
Corning	2.25	1.90
Somerset, medium	2.45	1.70
Somerset, light	2.60	1.85

CENTRAL STATES

Illinois	$2.12	$1.97
Indiana	2.13	1.98
Lima	2.33	2.18
Plymouth	1.65	1.35
Princeton	2.02	1.97
Waterloo	1.10	1.45
Wooster	2.35	2.00

WESTERN KENTUCKY

Posted by Indian Refining Company for crude from Allen, Warren, Franklin, Davies, Barren, Cumberland and Monroe Counties

36 and above	2.05	1.75
33 to 35.9	1.95	1.65
32.9 and below	1.85	1.55

CALIFORNIA

(Crude oil prices at well)

Los Angeles and Orange Counties

14 to 19.9 gravity	$1.25	$1.00
20 to 20.9 gravity	1.27	1.01
21 to 21.9 gravity	1.30	1.02
22 to 22.9 gravity	1.33	1.03
23 to 23.9 gravity	1.36	1.05
24 to 24.9 gravity	1.40	1.07
25 to 25.9 gravity	1.44	1.10
26 to 26.9 gravity	1.48	1.13
27 to 27.9 gravity	1.52	1.16
28 to 28.9 gravity	1.56	1.19
29 to 29.9 gravity	1.60	1.22
30 to 30.9 gravity	1.64	1.25
31 to 31.9 gravity	1.68	1.28
32 to 32.9 gravity	1.72	1.31
33 to 33.9 gravity	1.76	1.34
34 to 34.9 gravity	1.80	1.37
35 gravity and above	1.85	1.40
Fuel Oil	1.65	1.40

Rosecrans Field

36 to 36.9 gravity	$1.92
37 to 37.9 gravity	2.00
38 to 38.9 gravity	2.08
39 to 39.9 gravity	2.16
40 to 40.9 gravity	2.24
41 to 41.9 gravity	2.32
42 and above	2.40

MID-CONTINENT

Prairie, Sinclair, Texas, Gulf

	July 15 1925	July 19 1924
28 to 28.9 degrees	$1.40	$1.25
29 to 29.9 degrees	1.48	1.25
30 to 30.9 degrees	1.56	1.45
31 to 31.9 degrees	1.64	1.45
32 to 32.9 degrees	1.72	1.45
33 to 33.9 degrees	1.80	1.75
34 to 34.9 degrees	1.88	1.75
35 to 35.9 degrees	1.96	1.75
36 to 36.9 degrees	2.04	2.00
37 to 37.9 degrees	2.12	2.00
38 to 38.9 degrees	2.20	2.00
39 to 39.9 degrees	2.28	2.25
40 to 40.9 degrees	2.36	2.25
41 to 41.9 degrees	2.44	2.25
42 to 42.9 degrees	2.52	2.25
43 to 43.9 degrees	2.60	2.25
44 Baume gravity and above	2.68	2.25

(Magnolia Petroleum Co.)

Under 28 gravity	1.00	.90
28 to 30.9 gravity	1.35	1.00
31 to 31.9 gravity	1.64	1.10
32 to 32.9 degrees	1.72	1.45
33 to 33.9 degrees	1.80	1.75
34 to 34.9 degrees	1.88	1.75
35 to 35.9 degrees	1.96	1.75
36 to 36.9 degrees	2.04	2.00
37 to 37.9 degrees	2.12	2.00
38 to 38.9 degrees	2.20	2.00
39 to 39.9 degrees	2.28	2.25
40 to 40.9 degrees	2.36	2.25
41 to 41.9 degrees	2.44	2.25
42 to 42.9 degrees	2.52	2.25
43 to 43.9 degrees	2.60	2.25
44 Baume gravity and above	2.68	2.25

NORTH AND CENTRAL TEXAS

(Humble Oil & Refining Co.)

(The Texas Company)

For Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie and Moran Crude.

28 to 28.9	1.40	...
29 to 29.9	1.48	...
30 to 30.9	1.56	...
31 to 31.9	1.64	...
32 to 32.9	1.72	...
33 to 33.9	1.80	...
34 to 34.9	1.88	...
35 to 35.9	1.96	...
36 to 36.9	2.04	...
37 to 37.9	2.12	...
38 to 38.9	2.20	...
39 to 39.9	2.28	...
40 to 40.9	2.36	...
41 to 41.9	2.44	...
42 to 42.9	2.52	...
43 to 43.9	2.60	...
44 and above	2.68	...

SOUTH TEXAS

Mirando (Texpata)	1.00	.80
Mirando (Magnolia)	1.00	.75

SOMERSET

(Grayburg Pipe Line Company)

30 and below	1.35	1.35
30 to 32.9	1.55	1.15
33 to 35.9	1.80	1.40
36 to 38.9	2.00	1.60
39 to 41.9	2.25	1.75
42 and above	2.35	1.75

GULF COAST

Grade "A"	1.75	1.75
Grade "B" at Blue Ridge, Hull and Pierce Junction	1.50	1.45

LULING

Based on Contract	1.15	1.00
Lockhart	2.00	...

LOUISIANA-ARKANSAS

Caddo

	July 15 1925	July 19 1924
38 gravity and above	2.20	1.60
35 to 37.9 gravity	2.10	1.50
32 to 34.9 gravity	2.00	1.40
Below 32 gravity	1.85	1.25

Homer

35 gravity and above	1.95	1.60
33 to 34.9 gravity	1.85	1.50
31 to 32.9 gravity	1.75	1.40
Below 31 gravity	1.60	1.25

Cotton Valley

All Grades	1.10	.90

Haynesville

33 gravity and above	1.85	1.50
Below 33 gravity	1.75	1.40

Bull Bayou

38 gravity and above	2.00	1.55
35 gravity to 37.9	1.85	1.40
32 to 34.9 gravity	1.70	1.25
De Soto crude	2.05	1.60
Chichton	1.85	1.40
Bellevue	1.90	1.50
Jennings	1.90	1.75
Vinton	1.90	1.75
Edgerly crude	1.90	1.35

Smackover

Atlantic, Shreveport-Eldorado

28 and above	1.35	1.05
27 to 27.9	1.30	1.05
26 to 26.9	1.25	1.05
25 to 25.9	1.20	.90
24 to 24.9	1.10	.80
Below 24	.90	.70

The Texas Company

26 gravity and above	1.30	1.05
24 to 25.9	1.00	.90
Below 24	.80	.70

Standard—Gulf—Louisiana Oil Refining Co.

27 and above	1.35	...
26 to 26.9	1.30	...
25 to 25.9	1.25	...
24 to 24.9	1.15	...
Below 24	.85	...

El Dorado

33 gravity and above	1.85	1.60
Below 33 gravity	1.75	1.50
East Field (Calion)	.90	.75

Stephens District

26 gravity and above	1.45	...
Below 26 gravity	1.25	...

WYOMING-MONTANA

Wyoming

Byron	2.25	...
Ferris	1.30	...
Elk Basin	2.15	1.95
Grass Creek	2.15	1.95
Rock Creek	2.00	1.70
Lost Soldier	1.35	...
Lance Creek	2.15	1.90
Mule Creek	1.25	...
Notches	.65	...
Big Muddy	2.00	1.50
Salt Creek	2.00	1.60
Osage	2.15	1.90
Hamilton Dome	1.80	1.55
Pilot Butte	1.75	1.25
Torchlight-Greybull	2.15	1.90
Lander	.85	.70

Montana

Sunburst	1.55	1.05
Cat Creek	2.15	1.95

NEW MEXICO

Hogback	2.20	...

CANADIAN CRUDE

Oil Springs	2.80	2.75
Petrolia	2.73	2.68

*Bounty on Canadian crude is ¾ cent per gallon, or 26¼ cents per barrel.

THE LOCATION of dealers who feature Sinclair Oils makes no difference in the closeness of the contact between us—a contact closer than is usual between buyer and seller.

Sinclair dealers are never without Sinclair service and co-operation. Sinclair recognizes and fulfills its obligations to the dealer.

SINCLAIR REFINING COMPANY

NEW YORK
Sinclair Oil Bldg., 45 Nassau St.
Telephone: Rector 9320

CHICAGO
22nd and Rockwell Streets
Telephone: Crawford 2000

Cable Address: "Lucent"

SINCLAIR OILS

AVERAGE DAILY PRODUCTION FOR U.S.

Mountain States

Daily average pipe line runs from all the fields in the Rocky Mountain states during the past and previous weeks were as follows:

WYOMING

Fields	Past Week	Prev. Week
Salt Creek	49,615	54 910
Lost Soldier	4,500	4 930
Big Muddy	3,475	1,980
Rock Creek	2,925	2,870
Grass Creek	2,270	2,250
Grass Creek	2,100	2,270
Teapot	1 750	1,815
Poison Spider	1 600	1,550
Elk Basin	850	915
Mule Creek	860	920
Lance Creek	680	690
Hamilton Dome	640	675
Notches	435	430
Osage	375	375
Lander	330	345
Greybull	175	160
Ferris	125	110
Pilot Butte	70	75
Wyoming Totals	72,775	77,270

COLORADO

Fort Collins	1,480	775
Craig	675	690
Florence	280	260
Tow Creek	120	125
Rangely	115	100
Boulder	25	30
Totals	2,695	3,575

MONTANA

Cat Creek	3,500	3,575
Kevin-Sunburst	11,245	9,110
Totals	14,745	12 685

NEW MEXICO

Artesia	2,420	1,425
Rattlesnake	285	275
Hogback	520	530
Total	3,225	2,230
Miscellaneous	200	200
Grand Totals	93,640	94,365

Arkansas

Smackover Heavy	202,450	220,000
Smackover Light	28,200	29,000
El Dorado	8,310	8,400
Stephens	1,800	1,900
Irma	1.400	1,455
Totals	242 160	260,755

California

Los Angeles, Calif., July 11.—The daily average production of the California fields the past week, with the number of producing wells in several fields was about as follows:

	Past Week	No. Prod. Wells	Prev. Week
Long Beach	107 500	528	108,500
Inglewood	96,500	95	90,000
Santa Fe Springs	53,000	348	53,000
Huntington Beach	46,000	306	47,500
Torrance	37,000	565	38,000
Dominguez	29,500	54	31 000
Rosecrans	20,500	56	21 000
Other Fields	280,000		280,000
Total	670,000		669,000

Oklahoma

Field—	Past Week	Prev. Week
Tonkawa	55,350	58,090
Burbank	55,820	56,295
Cromwell	36,115	37,770
Bristow	44,980	44,865
Osage (outside Burbank)	35,640	35 600
Okmulgee	25,000	25 000
Cushing	21,100	20,870
Glenrease-Papoose	17,535	19,195
Wewoka	15,025	15,570
Hewitt	14,860	14 765
Garber	11,160	11 695
Otoe	5,110	6,735
Braman	7,070	5,490
Stroud	4,280	4,685
Other fields	85,900	84,945
Totals	434,945	441,570

Kansas

Greenwood	28 260	28,140
Rainbow Bend	18,690	18,760
Eldorado	13,895	13,900
Elbing and Peabody	5,600	5,615
Augusta and Douglas	3,110	3,120
Fox-Bush	2,925	2 930
Blankenship	2,330	2 335
Florence and Covert	1,955	1,960
Other fields	22,550	22,400
Totals	99.315	99,160

Louisiana

Haynesville	12,875	13,100
Cotton Valley	11,100	11,450
Caddo Light	9 215	9,300
Vinton	8,790	8,950
Homer	6,500	6,750
Bull Bayou	4,205	4,410
Bellevue	3.000	3.365
Caddo Heavy	2,400	2 275
Evangeline	825	840
Elm Grove	610	600
Edgerly	500	510
Lockport (Lake Charles)	130	500
Anse La Butte	12	25
Totals	60,162	62 075

Texas

NORTH TEXAS

	Past Week	Prev. Week
Corsicana-Powell	48,335	47,585
Archer County	36,275	36,035
Wortham	32,300	34,375
Big Lake-Reagan County	30,225	29 375
Mexia	20,025	19,840
Electra	17,235	16,993
Stephens County	15,465	16,650
Burkburnett	14,115	14,245
Eastland County	10,405	10,495
Young County	9 775	9,525
South Vernon-Wilbarger Co.	8,945	9,025
Richland	4,720	4,400
K-M-A and Iowa Park	4,510	4,300
Moran-Shackelford County	4,085	4,090
Panhandle District	3,795	3,855
Callahan County	3 485	3.745
Brown County	3,260	2,560
Mitchell County	2,315	2,310
Currie	1,310	1,350
Palo Pinto County	755	700
Petrolia-Clay County	395	440
Montague County	275	195
Coleman County	170	70
Scurry County	60	70
Throckmorton County	55	65
Baylor County	30	55
Thrall-Williamson County	40	55
Jack County	20	35
Totals	272,380	272,438

GULF COAST

South Liberty	20 500	17,500
Hull	19,275	19.200
Orange	14,930	1,750
West Columbia	11,520	11,410
Goose Creek	10,420	10,900
Humble	4,240	4,400
Sour Lake	4 090	4,200
Saratoga	1,680	1,700
Batson	1,480	1,400
Damon Mound	1,190	1 150
Spindle Top	1,170	1,100
Blue Ridge	1,080	925
Big Creek	850	1,040
High Island	570	600
Pierce Junction	420	470
Markham	150	80
Barbers Hill	150	135
Dayton	40	50
Nacogdoches	30	30
Totals	93,785	89,040
Total North Texas	272,380	272,438
Luling	23,000	23,500
Mirando	9,500	9,600
Somerset	3 065	3,050
Lockhart	11,900	15,000
Misc. South Texas	600	700
Totals	414,230	413,328

Condensed U. S. Production for Twelve Months

(Stated in Barrels)

This table is compiled each week by The OIL WEEKLY, and shows daily production average for each state or section.

Daily average for month	*Mid-Continent	North Central Texas	Texas Coastal	Texas Total	Kansas	Okla.	Louisiana	Eastern States	Wyo. Mont Colo. New Mexico	Calif.	Ark.	Total
March	762,684	284,874	78,567	388,221	69,864	407,946	55,783	97,800	128.352	650,790	119,869	1,917,023
April	777,590	276,595	76,755	380,005	71,015	429,980	54.740	101,250	127,700	649,825	128,750	1,943,270
May	763.320	267,475	74,175	374,915	71,490	424,355	60,655	103,800	127,770	640,930	148,630	1,952,545
June	709,230	260,785	74,335	375,310	74,265	464,175	62 660	105,750	125,735	628,400	157,165	1,993,465
July	815,830	254,665	75,445	378,365	81,545	479,620	63,855	107,175	124,305	620,175	148,655	2,003,695
August	861,640	254,520	75,700	377,045	85,765	521,355	62.595	107,000	123,895	619,200	142,740	2,037,890
September	886,650	253,243	76,953	366,197	86,758	546,642	62,162	107,622	117.345	611,500	131,343	2,029,580
October	855,823	247,222	75,713	359,861	86.884	521,717	62.493	106,600	107,270	605,060	123,235	1,972,902
November	851,733	248,467	71,648	369.621	86,031	517,237	66.117	106,375	91,205	594,000	119,893	1,950,478
December	873.344	267,065	65,437	385,410	88,065	518,213	59 602	106,875	83,472	606,875	111,402	1,959,917
January	906,160	334,305	65,065	448,900	88,390	483,465	56.520	106,200	78,435	602,600	106,280	1,970,350
February	861,130	292,796	63,885	405,195	88,790	479,545	56,825	105,125	87,710	598,375	106,085	1,927,680
March	839,200	301,795	83,800	434,410	84,965	452,440	58 030	100,550	90,900	605,775	112,425	1,939,520
April	836,110	294,040	94,215	435,035	84,360	457,710	57.700	98,250	91,845	602,800	209,840	2,037,545
May	835,350	295,695	100,205	447,080	93,610	446,040	60,945	101,140	91,492	609,200	419,770	2,269,280
June 6	847,275	291,870	98,110	442,240	100,895	454,510	60,625	103,400	89,340	632,500	436,910	2,320,420
June 13	843,445	289,200	97,200	439,930	101,675	452,570	60,610	104,000	84,070	631,000	360,880	2,234,735
June 20	833,170	283,645	91,750	425,040	100,280	449 245	59,735	103,800	92,430	643,500	322,885	2,196,915
June 27	815,820	279,665	90,995	420,275	90,030	446,125	58,940	103,500	84,070	663,000	279,175	2,145,115
July 3	813,168	272,438	89,040	413,328	99,160	441,570	62,075	104,000	94,365	669,000	260,755	2,144,253
July 10	806,640	272,380	93,785	414.230	99,315	434,945	60,162	105,000	93,640	670,000	242,160	2,119,452

*Includes North Central Texas, Kansas, Oklahoma.

NOTE—Wortham, Corsicana-Powell and Mexia production included in North Central Texas

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

Summarized Review of Field Results

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Product'n This Week	Initial Product'n Last Week
Oklahoma	94	89	58	59	7	5	29	25	11,448	11,402
Kansas	37	40	18	28	..	..	19	12	3,353	4,998
Texas	127	186	70	125	4	4	53	57	7,691	19,695
Arkansas	55	49	46	43	4	3	5	3	41,150	57,455
Louisiana	12	9	7	5	1	2	4	2	209	470
Eastern States	197	148	126	71	41	46	30	31	1,177	1,389
Mountain States	23	21	16	15	1	1	6	5	3,655	1,890
California	23	27	23	27	..	..	..	..	21,195	13,225
Totals	568	559	364	373	58	61	146	135	89,888	110,524

NOTE—Following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; †—salt water; †—junked and abandoned; ¶—million cubic feet of gas; abn—abandoned; bbls—barrels; b. s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling N. S. E. W.—North, South, East, West; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—under reaming; wo—workover; wosr—waiting on standard rig.

Texas

ARCHER COUNTY

Company, Well, Location—	Initial Production Bbls.	Depth
Anderson-Pritchard Oil Corp. D. L. Wolf 1	*	1473
Bridwell et al Oil Investment Co. Fee 2	10	1431
Burns-Maxson et al L. F. Wilson 3	110	1407
Comac Oil Co. Brockheuser 1	*	1668
Davis-Hart Oil Co. Roach-Junker 13	15	1235
Roach-Junker 14	20	1234
Dolman-Kellogg et al Prideaux 1	6	680
Empire Gas & Fuel Co. Anderson 1	450	1423
Fletcher-McNamara et al Myers 1	†	1475
Gulf Prod. Co. H. L. Morrison 1	*	1281
Kentucky Oil Corp. et al T. B. Wilson 1	15	1715
Larkin & Consolidated Oil Co. L. F. Wilson 1	*	1655
Marland Oil Co. et al Krupka 2	*	1305
Murchison-Fain & Marland Oil Co. Echols 16-A	*	1298
Echols 17-A	*	1315
Echols 18-A	15	1340
Echols 4-B	*	1340
H. Harmel 12-A	*	1320
H. Harmel 14-C	20	1285
H. Harmel 15-C	65	1280
Wood 1	*	1385
Muse et al A. J. Lowe 8	*	1430
Nat'l Refining Co. W. F. Woodrum 1	*	1754
Norday Oil Co. Anderson 2	250	1421
Anderson 3	†	1163
Phillips Pet. Co. J. H. White 75	30	1624
J. H. White 76	110	1613
J. H. White 77	150	1607
Waite Phillips Co. D. L. Wolfe 3	125	1383
L. F. Wilson 11	50	1524
L. F. Wilson 12	505	1515
Morrison 1	*	1350
Prairie Oil & Gas Co. L. F. Wilson 13-E	100	1585
Perkins et al Anderson 1	550	1421
S. W. Richardson et al R. Campbell 1	*	1153
C. Smith et al J. J. Perkins 1	*	1854
The Texas Co. Richardson 4	45	1365
Texhoma Oil & Ref. Co. Ferguson 5-L	*	1819
Underwood Drilling Co. L. F. Wilson 1, (Sec. 188)	*	1654
White Eagle Oil & Ref. Co. L. F. Wilson 1	25	1464
Woodrum Oil Corp. (Simms) L. F. Wilson 19-A	45	1593

BURKBURNETT

Company, Well, Location—	Initial Production Bbls.	Depth
Magnolia Pet. Co. H. Reilly 116	10	1319

ELECTRA

Company, Well, Location—	Initial Production Bbls.	Depth
Empire Gas Fuel Co. Pierce Fee 13	10	1536
Humble Oil & Ref. Co. Douglass 18	5	2022
Magnolia Pet. Co. Rio Bravo 48	15	732
Burnett-Section Two Oil Co. 8	*	1998
W. M. Moore et al Burnett 6	*	1610
The Texas Co. Waggoner 289	10	1972
Texhoma Oil & Ref. Co. Burnett 6-H	*	1943

K-M-A and IOWA PARK

Company, Well, Location—	Initial Production Bbls.	Depth
Carter-Inland Oil Co. K. & K. S. 5	35	1795
Commercial Pet. Co. Edgerly 1	*	2002
Fidelity Oil Co. Peeler 9	110	1768
John Hooser et al Mitchell 1-B	110	1291
Petroleum Prod. Co. A. & K. 5-B	150	1648
A. & K. 6-B	160	1648
Pois & Johnson et al Hodge 1	*	1835
Shappell Oil Co. Ferguson 1	*	1829

YOUNG COUNTY

Company, Well, Location—	Initial Production Bbls.	Depth
Jake Hamon Heirs et al Stovall 2	185	3995
Humble Oil & Ref. Co. Mercer 2	50	1094
Cliff Mooers et al Smith 1	*	1350
Moore & Chapman et al Thedford 1	325	3730
Murchison-Fain Co. Wilson 3	*	1095
Murchison-Fain & Litchfield R. Campbell 7-D	80	988
R. Campbell 8-D	800	994
Perkins et al Powell 2	*	1405
Simms Oil Co. J. D. Carpenter 10	*	1026
Suggett & O'Neil et al Winkler 1	*	1303
Sun Oil Co. Donnell 3	190	3350
Texas Unity Oil Co. Hausler 3	200	1065

EASTLAND COUNTY

Company, Well, Location—	Initial Production Bbls.	Depth
Community Oil Co. Allen 1	20	1930
Eby et al Miller 7	5	1695

SHACKELFORD COUNTY

Company, Well, Location—	Initial Production Bbls.	Depth
Albany Oil Co. Moberley 3	15	1011
Tannehill et al Moberley 13	15	1003

STEPHENS COUNTY

Company, Well, Location—	Initial Production Bbls.	Depth
Curry Pool Oil Co. Jones 2	*	3295
McLester Oil Co. et al Langford 1	†	1200
Mid-Kansas Oil & Gas Co. Hill 16	30	3325
Atkins 11	50	3298
Texas Pacific Coal & Oil Co. Veale 1, dd	40	4370

SOUTH VERNON

Company, Well, Location—	Initial Production Bbls.	Depth
L. B. Lawson et al Waggoner 8	95	2033
McCamey-Sherrin & Lucey Stephens 20	50	1313
Staley-Wynne et al Bond 2-A	110	2028
Bond 11-B	350	2320
Winnipeg Oil Co. Bond 9	*	2460
Bond 11	35	1779

GULF COAST

Company, Well, Location—	Initial Production Bbls.	Depth
Spindle Top—		
Holliday & Laughman Gladys 1	25	....
Saratoga—		
Rio Bravo Oil Co. Fountain 2	*	3190
Regna Oil Co. Ogden 7	..	1375
Hull—		
Gulf Prod. Co. Phoenix 53	1500	3415
Humble Oil & Ref. Co. Guedry 6	900	3098
Melom Oil Co. Taylor 1, wo	220	3005
Gulf Prod. Co. Schade Fee 9	250	3275
A. Deussen Fee A-7	800	3415
A. Deussen Fee A-5	1500	3475
A. Deussen Fee A-3	500	3605
Humble Oil & Ref. Co. Deussen Fee A-1	100	3580
Associated Oil Co. Deussen Fee A-3	1800	3430
Sun Co. Schade 11	75	3640
Sinclair Oil & Ref. Co. Condit Fee 2	1800	3527
Goose Creek—		
Gulf Prod. Co. Stateland Oil Co. 34	250	2770
Blue Ridge—		
Gulf Prod. Co. Bassett Blakely C-11	....	3340
Big Creek—		
Union Sulphur Co. Davis 28	....	705
Davis 29	....	770
Orange—		
Gulf Prod. Co. F. T. Peveto 9	2900	4540
Rycade Oil Corp. State A-5	..	5860
Orange Pet. Co. Chesson 11	2500	4625
Vinton—		
Gulf Refining Co. of La. Star-Vincent 36	2000	3105
Vinton Pet. Co. Vincent 14	30	3089
Edgerly Pet. Co. Vincent 4	300	3145
Edgerly Pet. Co. Vincent 5	2000	3200

NORTH CENTRAL

Company, Well and Location	Initial Production Bbls.	Depth
Richland—		
Gulf Prod. Co. Mary Hillburn 2	190	3000
Barclay & Meadows Hillburn A-2	¶10	2997
Sun Co. Hillburn 60 Acres 2	150	2997
Hillburn A-1	100	3008
Powell—		
Gulf Prod. Co. Ruby Smith 11	25	1630
Elliott et al Westbrook 1	..	3715
J. K. Hughes Hill B-11	400	2933
Humble Oil & Ref. Co. G. H. Kent 1	15	1653
Ramsey B-30	140	2050
Wortham—		
Humble Oil & Ref. Co. Evans 1	..	3035

EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
Waskom Gas Field, Harrison County—		
Mid-Kansas Oil & Gas Co.'s Furrh 1, E. M. Jenkins H/R survey	¶3	1970
Thomason et al's Downs 1, J. Adams H/R survey	¶11	1950
Total, 2 wells	¶14	
Panola Gas Field, Panola County—		
J. C. McCormack et al's Lawless 3, P. M. Mays H/R survey	¶8	1952
Waters Oil Co.'s R. Johnson 1, B. C. Jordan H/R survey	*	1996
Total, 2 wells	¶8	
Extension of Caddo Oil Field, Marion County—		
Morefield-Caddo Oil Co.'s Mebane-Stiles 1, M. Gupton H/R survey	150	2359

Oklahoma

Company, Well, Location—	Initial Production Bbls.	Depth
Kay County—		
The Texas Co.'s No. 8 Davis, C SW SE SW 27-25-1w	1633	4230
Comar Oil Co.'s No. 22w Beverlin, C. S. L. N½ NW 34-25-1w	3050	4200
Prairie O. & G. Co.'s No. 6 Smith, C NE SW SE 1-26-2w	250	2532
McComas & Jarvis' No. 1 Branine, C SE SW SE 15-29-1w	*	3596
National Union Oil Co.'s No. 2 Jowell, NWc NE SW 1-22-1w	*	3492
Marland Oil Co.'s No. 3 Hubbard, SEc NW 12-26-2w	*	....
No. 3 McCullough, C SW NE NE 12-26-2w	*	....
Noble County—		
K-D Oil Co.'s No. 2 White, C NW NW SW 1-22-2w	¶	715
Logan County—		
Skelly Oil Co.'s No. 1 Newman, NWc NE 32-19-3w	*	3007
Garfield County—		
Ben Franks' No. 3 Allen, C NE SW SE 16-22-3w	15	1517
Sinclair O. & G. Co.'s No. 16 Hartley, NWc SW NW NW 18-22-3w	500	2340
Sinclair O. & G. Co.'s No. 32 Belveal, NWc NE NE 24-22-4w	*	....
No. 33 Belveal, C N L NE NE 24-22-4w	*	....
Crews Heirs Oil Co.'s No. 11 Crews, C NW SE SW 19-22-3w	40	2282
Pawnee County—		
Donahoe & Carter's No. 1 Zoldoskie, SEc NW SE 22-23-4	137	3911
Gypsy Oil Co.'s No. 2 Choteau, SEc SW NE 22-23-4	90	3724
C. J. Wrightsman's No. 1 Hill, NE SE SW 1-21-5	*	3636
Fisher Oil Co.'s No. 1-A Wright, NEc NW SW 21-21-7	*	3000
Johnson O. & R. Co.'s No. 1 Eads, SEc SE NW 7-20-7	*	3027
Carter County—		
Magnolia Pet. Co.'s Lohman 9, C SW SW SE 23-2s-3w	54	2780
Merrick-Cameron Refg. Co.'s Moyer 2, C SW SE NE 8-3s-3w	60	3240
Humble O. & R. Co.'s Hewitt 15, NWc SW NE SW 9-4s-2w	50	2025
Brady 1, C SE SE NW 22-1s-3w	*	3785
Tate 1, C NE SE NE 32-1s-3w	*	2925
Amerada Pet. Corp.'s Fish 8, NWc NW SE 28-5s-1e	30	1235
Fish 9, C S L SE 28-5s-1e	10	1182
Wolverton 2, SEc SW SW NE 34-5s-1e	15	1131
Fish 1-A, NWc SE SE 28-5s-1e	*	1300
Westheimer 7, SWc NE NW 28-5s-1e	*	1525
Osage County—		
Sand Springs Home's No. 2, SW NW 29-30-11	¶	1732
No. 3, C W L E½ SW 32-20-11	10	2448
Grimes & Gillespie's No. 1, C E L W½ NE 6-20-12 (owd)	1000	2078
Skelly Oil Co.'s No. 2-A, NEc SE NE NE 2-21-8	5	1270
Sterling Oil Co.'s No. 12, C S L N½ S½ NW 12-21-11	20	1929
No. 1, NE SE 16-21-12	5	1623
Tidal-Osage Oil Co.'s No. 20, NWc SE SW SW 27-22-10	12	1217
Henry Oil Co.'s No. 14, SE SW NE NW 3-21-12	¶	1850
McKeon & Mallory's No. 3, SW SE SW SE 3-23-8	15	2324
Peters et al's No. 2, C NW SW NE 32-24-9	25	1584
Peters Pet. Co.'s No. 5, C SW NE NW 32-24-9	580	2485
Barnsdall Oil Corp.'s No. 4, C W L E½ W½ SW 2-24-11	12	1766
Wrightsman et al's No. 4, NW SE NE SW 19-25-8	120	2744
Lewis Oil Co.'s No. 6, C SW NE NE 21-26-6	375	2978
W. J. Knupp's No. 1, NE SE NE SW 3-26-11	15	1551
Winona Oil Co.'s No. 2, SE NW 18-27-12	5	1021
No. 10, NW NE NW 27-29-11	45	983
Acacio Oil Co.'s No. 2, NW SW NE NE 22-22-8	*	2885
Foster et al's No. 1, NE SW 15-22-10	*	2345
Fitzstephens' No. 1, SW NE SW 34-28-10	*	1580
Tulsa County—		
Sand Springs Home's Smith 1, SWc SE NE 13-19-11	5	2237
Superior Oil Co.'s Johns 5, C W L NE SE 26-19-11	100	2321
Minnehoma Oil Co.'s Walker 21, C E L SE SE 13-16-12, twin	5	2380
Okmulgee County—		
E. Price's Connor 9, C N L NW NW 6-14-15	*	700
. Beaver's Colbert 4, C E L SW SE SW 15-14-14	*	2310
Noble O. & G. Co.'s Stepney 1, SEc 1-15-12	*	2023
Independent O. & G. Co.'s Hasking 1, NWc NE SW 27-16-12	24	2557
Iron Mountain Oil Co.'s Doneghy 1, NEc NW SE 7-15-12	¶	2175
Page Bros.' Stubbon 1-A, NWc SE 14-15-12, twin	450	2633
Blakely O. & G. Co.'s Fixico 2, NWc NE NW NW 23-14-12	20	746
Eastern Oil Co.'s Kemp 11, NEc SW SW 25-13-11	50	2440
Helena Oil Co.'s Lovell 2, SWc SE NW 16-13-15	10	2317
Papoose Oil Co.'s Osborn 13, SWc NW SE 21-15-14 (owd)	30	2[illegible]
Sheridan Oil Co.'s Hudson 1, NEc NW NE 37-16-11	*	2327
W. B. Pine's Staley 1, SEc SW 35-16-12	*	3550
Suppese et al's Staley 3, C S L SW SE 35-16-12	*	2550
Creek County—		
The Texas Co.'s Dale 30, SEc NW 6-18-7	70	2482
Sulurian Oil Co.'s Starr 22, C S L NE NE 17-18-7	¶	650
Shaffer O. & R. Co.'s Fisher 22, NEc 18-18-7	36	2435
Atlantic Oil Prod. Co.'s Fry 2, SEc NE SE 14-17-8	95	2356
The Texas Co.'s West 1, NEc SW NW 17-18-9 (owd)	¶	2602
Josey Oil Co.'s Self 2, NWc SW SE 36-17-9	15	1145
Prairie O. & G. Co.'s Reed 3, NEc NW 13-26-2w	28	2393
Blauner & Hartley's Benson 1, NWc NE NW 31-17-7	*	2730
Olean Pet. Co.'s Willis 5, NEc SW NE 6-16-8	*	3681
Yahola 3, NEc SE 3-17-8	*	3561
Roland Oil Co.'s No. 1, NEc SE SW SE 6-16-9	*	3640
Okfuskee County—		
McMahon et al's Rentie 14, SEc NE 36-12-11	40	3296
Amerada Pet. Co.'s Harjo 5, C NE SW SW 36-10-9	155	3387
Lou Unburn et al's Fish 1, C NE NW 36-10-11	100	3154
Seminole County—		
Carter & Gardner's Sands 1, C SW SW SE 27-11-8	23	3464
Sinclair-Houston's Hill 4, C SW SW SE 28-11-8	500	3457
Sinclair O. & G. Co.'s Pierce 3, C NW SE SE 33-11-8	360	3367
Carter & Pulaski's Baker 2, C SW NE NW 33-11-8	404	3417
Baker 3, C NE SE NW 33-11-8	145	3417
Southwestern Pet. Co.'s Little 3, C NW SW SE 3-10-8	25	3425
Prairie O. & G. Co.'s Owens 4, SW SE NE 3-10-8	240	3414
Gypsy Oil Co.'s Hale 6, C SW SE NE 9-10-8 (owd)	*	4000
Waite Phillips' Grayson 1, C NW NE SW 9-9-8	*	3870
Hughes County—		
Mutual Oil Co.'s Carter 3, C NE NW NW 4-9-9	50	3353
Tidal-Osage Oil Co.'s Brockman 3, C SE SW SW 4-9-11	210	3093
Producers & Refiners' Jacobs 2, C NW NE NE 14-7-8	¶	2937
Stephens County—		
Knox Pet. Co.'s Garza ., C E L SW NE NE 2-2n-5w	60	1492
Douhitt et al's Brown 2, C S L NE NE 26-1n-9w (owd)	10	2257
Magnolia Pet. Co.'s Blaylock 2, C SE NW 14-2s-5w	10	932

Kansas

Company, Well, Location—	Initial Production Bbls.	Depth
Coffey County—		
Menhall & Winkler's Elliott 8, SWc NE SW 14-23-13	25	1824
Cowley County—		
J. A. Hull's Newman 1, NEc SE SW 24-32-4	75	2360
Marland Oil Co.'s Wright 2, SWc NW NE 10-33-3	40	2575
Roxana Pet. Co.'s Spreun 5, NWc NE SW 10-33-3	107	2560
Spreun 6, NEc SW 10-33-3	212	2579
Waite Phillips & Marland's Caldwell 2, NEc NW NW 28-33-3	1345	3287
Elk County—		
Watchorn Oil & Gas Co.'s Denton 7, SWc NE NW 3-30-9	20	2258
Woodson County—		
Empite G. & F. Co.'s Hasler 2, C S L NE NW 23-23-12 (owd)	20	1805
Greenwood County—		
Allen et al's Kipfer 4, NWc SW NE 13-22-10	125	2142
C. W. Titus' Prather 2, SWc NW NW 29-22-10	400	2444
Phillips Pet. Co.'s Vorhees 1, SWc SE 1-22-11	28	1845
Empire G. & F. Co's Kipfer 3, NEc SE 11-22-11	400	1815
R. G. Gillespie's Miller 1, SEc NE NW 27-22-13	11	1873
Tom Conway's Noler 1, SEc 3-23-9	150	2399
Lewis Oil Co.'s Heddleson 5, SWc NW SE 1-24-9	25	2300
Roxana Pet. Co.'s Marshall 6, SEc NE SE NW 34-24-9	120	2250
Franklin Oil Co.'s Johnson 4, C E L SE SE 15-24-12	50	1754
Mid-Kansas O. & G. Co.'s Hoffman 6, NEc SE NW SW 30-25-9	200	2198
Phillips Pet. Co.'s Hammer 1, SEc NW 30-22-10	*	2695
Richey & Moore's Klasson 1, NEc NW SE 5-22-11	*	2088
York State Oil Co.'s Westcott 6, SWc SE NW 33-22-11	*	1966
Youker et al's Shambaugh 1, NWc NE 1-23-9	*	2528
Skelly Oil Co.'s Stroup 1, NWc SW NW NW 32-23-9	*	2999
Fisher-Lauch & Moore's Seeley 7, SWc SE SE 5-23-11	*	1727
Superior Six Oil Co.'s Pease 1, SEc NE SW 18-24-13	*	1728
Marion County—		
Leeward Pet. Co.'s Wahley 1, SEc NE NW 23-19-4	*	2607
Wilson County—		
Gwinnup et al's Willoughby 1, NEc NW NW 23-27-13	*	1535
Rhodes & French's Brown 1, NWc SW NW 2-27-14	*	1681
Lynch et al's Clinesmith 1, NWc SE 12-27-14	*	1636
Pulaski Oil Co.'s McKray 1, SEc NE 36-28-13	*	1700
Noble O. & G. Co.'s Prunty 1, SWc SE SW 6-28-16	*	1545
Hall 1, SEc SE NW 28-28-16	*	1273
Gillcock et al's Claycomb 1, NWc SE SW 24-29-18	*	1400
Keyes Pet. Co.'s Josh 1, SEc NW 25-30-15	*	1693
Kors et al's Keheroff 1, SWc SE NW 31-30-14	*	1718
Derby Oil Co.'s Fener 1, SWc NE SW 19-30-17	*	1310
Hauch, Devoe et al's Thompson 1, SWc SE NE 29-30-17	*	1426

California

Inglewood—		
Standard's L. A. Inv. 1-17	1000	2565
L. A. Inv. 1-7	170	2531
Petroleum Securties' Dabney Lloyd 4	320	2676
Cone 10	3300	2576
Shell Co.'s Rindge 8	1850	2564

Company, Well, Location—	Initial Production Bbls.	Depth
Rindge 5	3700	2850
Rindge 4	2225	2673
Petroleum Midway's Smith 1 (wo)	200	2805
Mohawk's No. 4	950	2755
Associated's Vickers 18	2050	2710
Torrance—		
Standard's Dominguez 13	110	3820
Marble Fee 13 (wo)	80	3820
Van Allen Oil Co.'s No. 7	70	3760
Petroleum Securities' Kleinmeyer B-1	30	3810
Rosecrans—		
Union's Howard Park 18	1725	4362
E. J. Miley's Marland 1 (wo)	900	4795
Midway Dist.—		
Balboa Oil Co.'s No. 48, Sec. 24-31-23	100	4348
Midlands' No. B-2, Sec. 34-31-24	200	4800
North American's No. 22, Sec. 30-31-24	1100	3980
Pacific Oil Co.'s No. 8 Sec. 29-31-24	475	4275
No. 10, Sec. 33-31-24	375	3930
Pinal Dome's No. 2, Sec. 22-31-32	15	1387
Sunset Dist.—		
Petroleum Midway's Dorothy 2,	250	3551

Mountain States

WYOMING

Salt Creek Field—		
Texas Production Co.'s No. 23 SE¼ 19-40-78	75	2470
No. 34 SE¼ 19-40-78	100	2450
Prairie Oil & Gas Co.'s No. 3, 6-39-78	*	2017
Continental Oil Co.'s No. 4-A, 30-40-78	80	2586
Midwest Refining Co.'s No. 6-L NW¼ 36-40-79 (est.)	1500	2485
Pilot Butte—		
Marine Oil Co.'s No. 8, 27-3-1	*	1990
Buffalo Structure—		
Prairie Oil & Gas Co.'s No. 1-B, 18-27-95	*	....
Buffalo Basin—		
Midwest Ref. Co.'s No. 36, 1-47-100	¶	1328
Hamilton Dome—		
Western States Oil & Land Co.'s No. 20 NW¼ 14-44-98	160	2485

MONTANA

Kevin Sunburst —		
Homestake Oil Co.'s No. 2-H, SW¼ 33-35-2	60	1460
Ohio Oil Co.'s No. 4-N, SW¼ 33-35-2	300	1446
Oneil Brothers' No. 1, 22-35-2	*	1500
Red Deer Oil Co.'s No. 5-A, SW¼ 29-35-1	85	1525
Shoshone Oil Co.'s No. 8-W, SE¼ 4-34-2	120	1469
Hibbing Oil Co.'s No. 2-F, SW¼ 1-34-2	105	1431
Diamond Oil Co.'s No. 3-M, NE¼ 33-35-2	85	1485
Arrow Oil Co.'s No. 3-B, SE¼ 29-35-1	35	1520
Buckner & Olson's No. 1-D, NW¼ 21-35-1	110	1590
Regina-Kevin Oil Co.'s No. 2-H, SE¼ 33-35-2	240	1478

COLORADO

Rio Blanco County—		
Marland Oil Co.'s No. 1-S, 20-1-96.	*	1990
Moffatt Dome—		
Texas Production Co.'s No. 1-EH, 35-5-91	*	740

NEW MEXICO

Artesia—		
Danciger Oil & Ref. Co.'s No. 1, SW¼ 4-18-28	350	2303
Eddy County—		
Ohio Oil Co.'s No. 1-TH, 28-18-28	250	....

Arkansas

Smackover Field, Ouachita County—		
Bailey & Murray's Rhoten B-1, 32-15-15	¶20-250	2585
J. E. Crosby's Berry 9, 33-15-15	1000	2378
Gulf Refining Co.'s R. Bennett 5, 33-15-15	500	2388
R. Bennett 6, 33-15-15	2000	2368
Flenniken 16, 5-16-15	500	2380
Houston Oil Co.'s B. T. Laney 10, 31-15-15	300	2568
Humble O. & R. Co.'s F. Murphy 3, 3-16-15	175	2365
Umstead 13, 5-16-15	200	2375
Leon et al's Umstead 1, 4-16-15	500	2381
Morefield et al's Umstead 4, 4-16-15	500	2362
Phillips Pet. Co.'s Farris 6, 34-15-15	8000	2374
Joyce 9, 33-15-15	6000	2445
Standard Oil Co.'s R. Bennett 6, 33-15-15	500	2371
Griffin 5, 33-15-15	1000	2377
Griffin 8, 33-15-15	1300	2381
H. Murphy 31, 5-16-15	135	2379
The Texas Co.'s Berry 10, 23-15-15	2500	2383
Solmson B-8, 32-15-16	25	2250
Smackover Field, Union County—		
Amerada Pet. Corp.'s Flenniken 8, 6-16-15	350	2380
Lyall 9, 3-16-15	800	2379
Arkansas Fuel Oil Co.'s Burton 1, 33-16-15	*	3303
Cherokee Pet. Co.'s Burton 7, 25-16-16	*	2032
J. W. Clark's Palmer 4, 9-16-15	100	2470
Gulf Ref. Co.'s Beaver 1, 7-16-15	50	2304
H. Murphy 30, 4-16-15	175	2379
T. C. Murphy 14, 9-16-15	175	2436
Imperial Oil & Gas Co.'s Murphy 1, 9-16-15	¶10	2322
Keen & Woolf's Murphy 5, 9-16-15	3000	2427
Kinnebrew et al's Williams 6, 3-16-15	300	2380
Lion Oil & Ref. Co.'s Flenniken 6, 10-16-15	250	2396
H. Murphy 2, 9-16-15	200	2409
H. Murphy 5, 9-16-15 (cratered)	*	2405
Lyall et al's Fee 10, 3-16-15	225	2380
Murdock et al's Hays 6, 4-16-15	250	2390
Ohio Oil Co.'s Murphy 7, 9-16-15	200	2409
Pate 3, 10-16-15	*	2002
Pate 10, 10-16-15	160	2385
Page Oil Co.'s Murphy 5, 7-16-15 (light oil)	150	2643
Penguin Oil Co.'s Murphy 3, 8-16-15	2000	2424
Phillips Pet. Co.'s Thompson A-1, 7-16-15	*	2120
Pure Oil Co.'s Friend 1, 6-16-15	500	2392
Ramage et al's Lawton C-7, 10-16-15	¶10	2574
Southern Crude Oil Purchasing Co.'s Graves 6, 3-16-15	500	2371
Lyall 4, 3-16-15	250	2366
Standard Oil Co.'s Alphin 21, 3-16-15	350	2385
McClanahan 7, 6-16-15	1500	2393
H. Murphy 17, 10-16-15	150	2402
H. Murphy 33, 4-16-15	¶30	2525
Stewart et al's Murphy 3, 9-16-15	1500	2487
Sun Co.'s Gaston 3, 5-16-16	40	2281
Hays 16, 3-16-15	600	2383
The Texas Co.'s Berry B-6, 8-16-15	1500	2433
Calloway 6, 4-16-15	300	2378
Howard 1, 7-16-16	45	2634
Thurman et al's Wilson 2, 6-16-15	145	2386
Total, 55 wells	¶70-41,150	

Louisiana

Bellevue Field—		
G. W. Wetherbee's Fee F-9, 23-19-11	¶¼-10	352
Caddo Parish—		
Austin Oil Co.'s Hoss 22, 24-22-15	25	1050
Lewis Oil Corp.'s Caddo 7, 24-22-15	10	1077
Lawton et al's Weiss 3, 15-21-15	10	1700
The Texas Co.'s Russell 10, 3-20-16	15	2330
Total, 4 wells	60	
Cotton Valley Field—		
Fortuna Oil Co.'s E. W. Cox 3, 15-21-10	140	2538

Eastern States

PENNSYLVANIA

Bradford Field—		
South Penn Oil Co. Bingham 410 tract 31	3	....
Bingham 439 tract 84	7	....
Bingham 481 tract 12	7	....
Bingham 533 tract 72	3	....
Bingham 554 tract 42	7	....
Fee 17	2	....
Fee 20	7	....
Leasure 1	7	....
Riddle 48	2	....
Melvin 1	3	....
Taylor 1	*	....
Hazlewood Oil Co. Bingham 179 tract 103	7	....
Bingham 22 tract 32	7	....
Fee 45	3	....
Hazlewood Oil Co. Fee 46	2	....
Smith & Co. Lincoln 1	7	....
Associated Producers Co. Bingham 580 tract 342	4	....
Bingham 590 tract 347	12	....
Bingham 591 tract 344	3	....
Bingham 152	4	....
Forest Oil Co. Porter 5	4	....
Porter 6	4	....
Porter 7	4	....
Murphy 1	3	....
Bingham 491 tract 46	3	....
Pressure Oil Co. Howard 1	7	....
George W. Bovaird Bingham 391 tract 78	7	....
C. L. Wann & Co. Bingham 370 tract 40	2	....
L. H. Smith & Son, Smith 1	4	....
W. J. Healy Healy 1	4	....
L. M. and A. L. Lilly Middaugh 1	4	....
John Jackson Franchot 16	4	....
Hannon Oil Co. Drake heirs 1	7	....
Hazlewood-Kennedy Interests Bingham 103	5	....
Phoenix Oil Co. Clark-Kennedy 156	4	....
McDowell & Andrus Bingham 296 tract 101	4	....
Venango County—		
E. A. Burch & Co. Porter 82	5	....
Bonnett & Haup Bissell 1	3	....
Bissell 2	5	....
Turner & Rossman Cox 2	5	....
J. B. Smithman Button 35	3	....
Espy Oil Co. Espy 19	3	....
G. R. and D. O. Moran Moran 54	4	....
Moon & Kestler Lamey 3	2	....
H. B. Trax Trax 32	2	....
I. N. Likin Miller	2	....
Clarion County—		
Lem G. and I. L. Neely Stewart 3	7	....
Alum Rock Gas Co. Hess 6	7	....
Corlett & Kaufman Kaufman & Co. 3	¶1¼	....
Christ & Shannon Horner 1	¶1	....
Dempseytown Gas Co. Heasley 2	¶1	....
F. Kribbs & Co. Kribbs 1	2	....
V. C. Dale Williams 1	*	....
Butler County—		
Moore & Co. Campbell heirs 1	¶1½	....
Perrin & Troutman Berbigler 1	¶1¼	....
Morris, Sherwin & Co. Ray 1	¶1¼	....
M. B. Finnessy Double 1	¶1½	....
Campbell, Rankin & Co. Campbell 7	3	....
Greene County—		
South Penn Oil Co. Blair Mitchell 4	¶2	....
Hope Construction & Refg. Co. W. and F. L. Caseman 2	5	....
Peoples Natural Gas Co. Fletcher Sellers 2	2	....
Carnegie Natural Gas Co. Cash Day 1	¶1	....
Center-Middle Field—		
Reinbold & Co. Osgood 8	50	....
Harrison & Anderson Water 1	2	....
Moore & Wolfe Lohman 1	2	....

NEW YORK

Allengany County—		
Gilligam & Co. Gilligam 1	7	....
Jim McMillan Coast 1	7	....
Albert Oil Co. Albert 1	5	....
W. O. and C. O. Taylor Thornton 1	3	....
W. J. Weller & Co. Kinley 1	2	....
Henline & Co. Henline 1	2	....
Howard & Phillips Phillips 1	*	....
Empire Gas & Fuel Co. Empire 1	3	....
Empire 2	3	....
Empire 3	2	....

WEST VIRGINIA

Ritchie County—		
Penn Royal Oil Co. C. Lowther 4	15	....
E. E. Pope Cambrill 1	2	....
South Penn Oil Co. George M. Haught 1	2	....
McCall Oil & Gas Co. Floyd Moore 1	¶1¼	....
Goose Creek Oil Co. James Newbrough 6	10	....
Clyde Pickering & Co. J. C. Pickering 1	*	....
M. A. Dearman Dearman 1	2	....
Premier Window Glass Co. R. T. Haymond 5	¶2	....

Company, Well, Location—	Initial Production Bbls.	Depth
West Virginia Heat & Light Co.		
Sandy heirs 1	5	....
Coe Bros. Oil & Gas Co. L. W. Tanzey 4	¶2	....
Hope Construction & Ref. Co. J. D. Fredericks 1	¶1½	....
Ferrell Farm Oil Co. U. S. G. Ferrell 4	2	....
Doddridge County—		
Trainer Bros. Joseph Freeman 1	50	....
Imperial Oil & Gas Products Co. C. E. Ross 1	10	....
Nay & Fetner J. W. Waldo 1	10	....
Pittsburg & West Virginia Gas Co. J. M. Gray heirs 1	¶2	....
Pleasants County—		
Howard Hall John Watson 1	*	....
Bottom Oil Co. Friend Wagner 2	2	....
Bailey Gas Co. H. L. and J. E. Amler 4	¶1½	....
Williams Oil Co. C. P. Smith 1	*	....
Lincoln County—		
Carter Oil Co. Cora Linville 1	¶1	....
David Fox L. R. Sweetland 1	¶1½	....
Foote Oil & Gas Co. Sweetland-Piedermore 1	¶1½	....
Tyler County—		
American Oil Development Co. J. W. Kyle 14	5	....
Brown Heirs G. B. Monteith 1	15	....
Wood County—		
Crumley Oil Co. G. A. Elliott 7	2	....
R. W. Richards & Co. S. Hackett 1	5	....
Roane County—		
Carter Oil Co. L. S. Monford 1	3	....
Newton Oil & Gas Co. J. W. Hudkins 1	¶2	....
Marion County—		
Owens Bottle Machine Co. F. C. Toothman 1	¶½	....
South Penn Oil Co. E. T. Price 5	2	3270
Wirt County—		
Southern Oil Co. M. Richter 20	5	....
Kanawha County—		
United Fuel Gas Co. S. V. Warbutton 1	¶1	....
Cabell County—		
Commercial Gas Co. W. Walker 1	¶2	....
Boone County—		
Owens Bottle Machine Co. Fuel Land Co. 2	*	....

KENTUCKY

Company, Well, Location—	Initial Production Bbls.	Depth
Barren County—		
Wood Oil Co. Joesph Church 1	16	572
Grover Evans 2	2	510
Houck 2	*	450
Consolidated Gas Co. Depp 3	8	495
C. A. Turner 2	*	607
Fred Moore Travis 9	16	484
T. L. Gorby Chamberlain 3	7	....
Glasgow Oil & Ref. Co. Fee 1	3	487
Carter Oil Co. Derring 1	2	460
Hiland Oil Co. Bybee 2	*	....
Warren County—		
T. A. Sheridan G. Davenport No. 3 tract 1	25	1260
Rockfield Oil Co. Smith 15	14	461
Ennis & Co. Porter 3	8	1070
A. T. Johnson Jerkins 10	*	546
Illinois-Kentucky Oil Co. McElwain 1	*	500
Onsel Bros. Davenport 3	*	567
Allen County—		
Keys Oil Corp. Beam 7	5	350
White Plains Oil & Gas Co. H. W. Reynolds 6	2	397
H. A. Kiser Richard 1	*	310
Unknown Parties Miller 3	*	115
Owensboro District—		
Leeper Oil Co. J. W. Caller 1	50	535
O. C. Boop T. Midkoff 1	*	820
Johnson-Magoffin Counties—		
Petroleum Exploration Co. Abe Caudill 34	10	....
W. S. Adams 26	*	....
Lee-Owsley Counties—		
Petroleum Exploration Co. Alexander Bond 2	¶1	....
Mack Gum 1	¶1	....
Clay County—		
Coleman, Benton & Co. Bull Creek 1	¶½	....
Standard Oil Co. of Kentucky Goose Creek 1	¶2	....
Logan County—		
Miller & Reigle James Pratt 8	6	614

SOUTHEASTERN OHIO

Company, Well, Location—	Initial Production Bbls.	Depth
Washington County—		
Barrett & Co. W. A. Christopher 1	¶1¼	....
J. F. Greenless 2	¶1	....
M. Anderson 1	¶¼	....
Anderson 2	¶1	....
L. A. Phillips William R. Dutton 9	2	....
H. B. Goddard & Co. Jacob Young 2	*	1440
Noble County—		
L. V. Hesson & Co. C. M. Harper 5	*	....
E. L. Hutchinson E. L. and E. W. Hutchinson 1	2	....
Morgan County—		
The Sun Co. C. E. Sweitzer 9	15	....

CENTRAL OHIO

Company, Well, Location—	Initial Production Bbls.	Depth
Licking County—		
The Pure Oil Co. I. E. Seward 3	85	....
Ed H. Everette Co. P. C. Phillips 1	65	....
Mideast Oil Co. C. L. Hazlett 1	*	....
Carter Oil Co. A. C. Bell 1	¶1	....
Wehrle Interests Otto Vogelmier 2	8	....
Elmer Vance 2	*	....
Zartman heirs 2	*	4400
Hocking County—		
Gordon Oil Co. W. L. Wagner 2	12	....
Kachelmacher Estate James J. Tracey 17	10	....
Carter Oil Co. George Barber 1	*	....
Coshocton County—		
Bell Bros. & Co. Cassingham-Herbig 8	¶¼	....
Cassingham-Herbig 9	¶¼	....
The Pure Oil Co. G. W. Crawford 7	10	....
Holmes County—		
East Ohio Gas Co. H. F. Lifer 1	*	....
Jacob Uhl 4	25	....
East Ohio Gas Co. M. J. Malloy 1	¶½	....
Daugherty Bros. F. V. Akins 2	10	....
Medina County—		
Logan Gas Co. Louisa A. Ulmer 2	¶1¼	3100
Ashland County—		
Ohio Fuel Gas Co. Rhoda Black 1	¶½	....
Athens County—		
William Hawkins & Co. L. H. Allen 2	¶¼	1192
Huron County—		
Logan Gas Co. Henry Thudum 1	*	....

NORTHWESTERN OHIO

Company, Well, Location—	Initial Production Bbls.	Depth
Mercer County—		
Dillbone Oil Co. H. H. Kopp 1	¶1	1140
R. H. Achoffer 1	¶1	1130
C. Combs Ben Redman 1	¶¼	1140
M. Callahan Florence heirs 2	¶¼	1138
A. W. Neely & Co. Peter Fecher 4	6	1175
June Oil Co. George F. Hellworth 5	15	1200
Allen County—		
Charles Geselchen S. Miller 7	15	1352
C. A. Peavey & Co. Elias Lewis 12	5	1320
Elias Lewis 13	5	1320
Paulding County—		
U. S. A. Oil Co., Bailey heirs 5	55	1465
Richland Oil & Gas Co. Samuel Stabler 1	10	1470
Wood County—		
The Sun Co. J. Ensminger 11	*	1500
Ohio Oil Co. E. Shanaberger 46	20	1564
Hardin County—		
Boston-Southwestern Oil & Gas Co. Mary Clark Irwin 2	20	1486
Hancock County—		
B. Porter & Co. S. H. Haley 19	15	1342
Sandusky County—		
Haubert & Talbert Martha Talbert 5	5	1307
Auglaize County—		
Young & Geselchen W. E. Cook 7	*	1400

INDIANA

Company, Well, Location—	Initial Production Bbls.	Depth
Jay County—		
Amber Oil Co., Inc., N. Thomas 4	20	....
A. M. Jones W. S. Bourne 1	20	....
W. W. Hawkins M. L. Depoy 1	*	....
Pike County—		
P. C. Andrews Encos Lovless 5	4	1041
Ohio Oil Co James Miller 1	*	1502
Blackford County—		
Montpelier Development Co. Lee Gerard 1	*	....

ILLINOIS

Company, Well, Location—	Initial Production Bbls.	Depth
Clark County—		
Wilson, Kraft & Co. Thomas Ramsey 1	50	1426
B. H. Heaton & Co. John Laigner 3	5	468
Crawford County—		
J. D. Toomey Highsmith Bros. 13	17	919
Peoples Bank & Trust Co. C. E. Henry 4	1	1014
Wabash County—		
Joseph S. Young & Co. W. F. Courter 4	*	1490

WILDCATS FROM ALL SECTIONS

North Texas Wildcats

COMPLETIONS

Company, Well, Location—	Initial Production Bbls.	Depth
Baylor County—		
Ray-Massie et al Mills 1	*	1473
The Texas Co. Mills 1	15	1456
Montague County—		
Texhoma Oil & Ref. Co. J. W. Rowland 1	¶4½	753
Throckmorton County—		
Southern Oil Co. Key 1	*	1500
Burton-Ruff & Empire Gas & Fuel Co. Waggoner 1	*	2475
Consolidated Oil Co. Waggoner 1, sec 50, blk 14	*	2294
Gulf Prod. Co. Waggoner 2-R, sec 50, blk 14	300	1517
Humble Oil & Ref. Co. Waggoner 1-D, sec 50, blk 14	175	1314
J. B. Levy et al Waggoner 2, sec 51, blk 14	*	2450
Maer-Staniforth et al Waggoner 1, sec 4	*	2003

Company, Well, Location—	Initial Production Bbls.	Depth
Wilbarger County—		
Magnolia Pet. Co. Waggoner 1, sec 59, blk 4	*	2740
Panhandle Ref. Co. et al Key 1	*	2415

DRILLING REPORT

BAYLOR COUNTY — British-American Oil Co.'s Haggard 1, dr 320 ft. J. S. Cosden et al's Garner 1, sd 1015 ft. Brit Cranfill et al's Mills 4, dr 1330 ft. Dallas Oil Co.'s Shawver 1, sd 1885 ft. W. H. Dyer et al's Cox 1, dr 1960 ft. Maer-Staniforth's Mills 2, dr 1150 ft. Texhoma Oil & Ref. Co.'s Portwood 3, dr 250 ft. John Hooser's Mills 2, ur 1440 ft; Mills 3, dr 1025 ft. Shaw-Rathke's Mills 2, dr 290 ft; Mills 3, dr 1210 ft; Mills 4, dr 1100 ft.

CLAY COUNTY—Mills Bennett et al's E.

L. Holloway 1, testing sand 1729 ft. Gulf Prod. Co.'s Worsham 6, dr 1055 ft. Lone Star Gas Co.'s Martin-Waggoner 24, std with hfo 1865-75 ft; Martin-Waggoner 25, rig; Holloway 13, dr 1515 ft; Holloway 14, dr 1420 ft. John O'Neil et al's J. F. Alcorn 1, dr 2710 ft.

COOKE COUNTY—Big Indian Oil & Dev. Co.'s F. Lester 1, dr 3280 ft. Elliott & Wallace's E. M. Osborne 1, spd and sd. C. C. Lanier et al's A. Hyman 1, spudding. Leonard & Jones' Hamilton 1, sd 1885 ft. Chas. Pettit et al's Nelson 1, sd 2620 ft; M. F. Williams 1, spudding. Sun Oil Co.'s A. M. Lederman 1, lcn. W. J. Rawson-Lyles et al's Cecil Aldredge 1-A, dr 2895 ft. Red River Drilling Co.'s Jones 1-A, fsh 2180 ft. H. S. Simpson et al's G. D. Houston 1, rig.

DENTON COUNTY — McNeil & Blackstock's T. Wright 1, dr 1500 ft. Gainesville Synd.'s Kate Fontenberry 1, fsh 1380 ft.

FOARD COUNTY—Murchison-Fain et al's W. S. Bell 1, dr 720 ft. G. E. Fagg et al's Burris 1, rig. The Texas Co.'s McCoy 1, fsh 1480 ft.

GRAYSON COUNTY—The Texas Co.'s G. W. Cannon 1, dr 2695 ft. Clopton & McMahon's Ida Thorn 1, dr 3225 ft. H. H. Johnson et al's Marshall 1, sd 1100 ft.

HASKELL COUNTY — Herbert Oil Co.'s Macon 1, dr 215 ft. Meyers et al's Stoker 1, dr 1355 ft.

JACK COUNTY—Humphreys Corp. et al's W. C. Campbell 1, near Avis, rig. Robinson et al's Marshall 1, sd 710 ft. Washington Oil Co.'s Gray 1, star machine.

MONTAGUE COUNTY — Arco Oil Co.'s M. H. Salmon 1, testing broken oil pay 1391-1406 ft and 1406-14 ft. Humphreys Corp.'s W. W. Jones 2, fighting wild gas, td 833 ft. Nocona Gas Co.'s R. Hynds 2, dr 470 ft. Pure Oil Co.'s Oldham 1, cemt 10-inch cas on oil pay 823-33 ft. Texhoma Oil & Ref. Co.'s J. E. Lemons 1-A, set 8¼ cas on gas pay 727-31 ft; Howard 5, sd 1837 ft. The Texas Co.'s I. Gist 4-A, dr gas pay 670 ft. Newblock Oil Co.'s J. W. Maddox 1, swabbed 380 bbls 21½ gravity oil first 24 hours 884-921 ft. Universal Oil Co.'s S. P. Steadman 1, dk.

THROCKMORTON COUNTY — Black Cat Oil Co.'s Gaither 1, dr 115 ft. Domestic Oil Co.'s Goeber 1, sd 1419 ft; Howsley 1, dr 1125 ft. Flowers et al's Travis County Fee 1, sd 1929 ft. Gray et al's Polk County Fee 1, dr 350 ft. Hoffer Oil Corp.'s Parrott 1, sd 160 ft; Reynolds Cattle Co. 1, sd 1396 ft. Humble Oil & Ref. Co.'s A. S. Harrison 1, dr 1190 ft; Harrison 2-B, dr 200 ft; Stubblefield 2, rebldg burned dk, td 945 ft. E. M. Jones et al's Rhodes 1, dr 650 ft. Johnson & N & W Oil Co.'s Batchlor 2, fsh 655 ft. Bruce Larkin et al's Richards 2, dr 1345 ft. Magnolia Pet. Co.'s L. B. Davis 1, dr 150 ft. Red Bank Oil Co.'s Graham 1, dr 1960 ft. Reiter-Foster Oil Corp.'s Stubblefield 2, sd making 7 million ft gas and some water 1165-86 ft. Richardson Bros. et al's Thomas 1, sd 1355 ft. Stiles & Schimmel's Stacey 1, dr 1144 ft. Schimmel Oil Co.'s W. R. Kelly 1, testing lime pay 2985-96 ft, estimated 80 bbls on pump. Schimmel et al's Putman 1, sd showing gas 955 ft. Staley-Wynne's Cole 1, dr 1615 ft. E. L. Smith Oil Co.'s Burkhalter 1-A, dr 1160 ft. Texhoma et al's Graham 1, dr 870 ft; Reynolds 3, testing gas and oil 871-75 ft.

East Central Texas Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Falls County—		
Reiter-Foster Oil Corp. L. T. Williams 1	*	879
Navarro County—		
Barkley-Meadows et al Hilburn 2	100	2992
Hilburn 3	*	3009
Sun Oil Co. A. Hilburn 2	90	2994
A. Hilburn 2-A	‖3-250	2993
Prince & Vacuum Oil Co. S. M. Huggins 1	*	3206

DRILLING REPORT

ANDERSON COUNTY—Roeser Pet. Co. et al's Brooks-Auld 2, dr 3530 ft; J. K. and L. P. Daniel 1, Chas. Gilmore sur, dr 3010 ft.

FALLS COUNTY — Harrison-Bletch & Thompson's B. & T. 1, W. A. Mitchell sur, dr 3675 ft. Harrison et al's Bargainer 1, Jos. Matthews sur, dk. Mook-Texas Oil Co. et al's J. Woodruff 1, S. C. Robertson League No. 4, lcn.

HENDERSON COUNTY—Fred Haynes et al's E. G. Bounds 3, H. Jeffreys sur, rig. Billings et al's (was Boston Fincastle Oil Co.) Dansby 1, dr 2555 ft. Evans et al's Martin 1, dr 2915 ft.

HOPKINS COUNTY — Gulf Prod. Co.'s Pierce 1, Jas. A. Craft sur, dr shale 2750 ft.

LIMESTONE COUNTY—Eisenmayer et al's Rivers 1, B. C. Abbott sur, sd 1190 ft. Hurdleston et al's Gill 1, sd 2750 ft. Magnolia Pet. Co.'s Rich Kennedy 1, dr 3065 ft. Pure Oil Co.'s Stockton 1, H. Capps sur, lcn. E. L. Smith Oil Co.'s Jones 1, Kosse Dist., rig. Wells et al's Richardson 1, spd and sd. Swearington et al's Dean 1, H. L. Thompson sur, dr 1230 ft. Yoder et al's Saunders 1, top chalk 2173 ft, dr 2530 ft.

MILAM COUNTY—J. K. Hughes et al's Jno. W. Foster 1, John Gafford sur, lcn. Magnolia Pet. Co.'s M. M. Kime 1, S. P. Carson sur, dr 3700 ft. Simms Oil Co. et al's B. F. Stidham 1, J. P. Jones League, rig.

NAVARRO COUNTY — Atlantic Oil Prod. Co.'s Talley 1, dr plug 2906 ft; Morrow 2, dr 2420 ft. Barkley-Meadows' Hilburn 4, rig. W. A. Graves et al's V. H. Stubbs 2, rig. Gulf Prod. Co.'s Hilburn 2, dr plug 2929 ft. Moore Bros. et al's Mrs. Quimby 1, NW of Currie, dr 3045 ft. Oxford Oil Co.'s Phipps 1, lcn; Phipps 2, top chalk 2180 ft, dr 2460 ft. Sun Oil Co.'s Hilburn 3, rig; Hilburn 1-A, testing pay 2970-3003 ft; Hilburn 3-A, rig; H. A. Swink 1-B, dr plug 2906 ft; H. A. Swink 1, dd, dr 3150 ft. Snowden & McSweeney's Longboham 13, rig. C. E. Holt et al's Madewell 1, SW of Richland, rig. Elliott & Nicolle's W. J. Westbrook 1, sd for water 3711 ft. Gilbert Johnson et al's Greer 2, Bazette Dist., top chalk 2650 ft, fsh in chalk 2810 ft. Simms & Sun Oil Co.'s Elliott 1, Richland-Navarro Dist., dr 2000 ft. King State Oil Co.'s J. W. Laird 1, NW of Wortham, sd water 2240 ft. Chapman et al's (was Strotman) Ebb Bounds 1, testing oil and gas 3105-37 ft. Marnett Oil Co.'s Frank Hines 1, John McNeill sur, top chalk 1950 ft, sd water 2210 ft.

Texas Panhandle Wildcats

COMPLETION

Company, Well and Location	Initial Production Bbls.	Depth
Roberts County—		
Phil Engle et al Mrs. Lederick 1	*	3502

DRILLING REPORT

CARSON COUNTY — American Ref. Co.'s Burnett 1-C, dr 2795 ft; Burnett 1-D, dr 1840 ft; Burnett 1, sec 129, was Danciger, std, td 3128 ft. Crosbie Oil Co.'s Burnett 3, rig. Culbertson Bros. et al's Burnett 1, spudding. Gulf Prod. Co.'s Burnett 9, dr 2283 ft. Magnolia Pet. Co.'s Burnett 1-A, dr 2075 ft. Marland Oil Co.'s Burnett 2, sd acct gas, td 2368 ft; Burnett 3, dr 280 ft; Burnett 4, rig. Olson et al's Burnett 1, sd 2970 ft. Premier Oil Corp.'s Burnett 1, sd making gas 2860 ft. W. W. Silk et al's Burnett 4, dr 2195 ft; Burnett 5, lcn. The Texas Co.'s Burnett 6, dr 2190 ft; M. C. Burnett 3, showing oil 2864-69 ft.

COLLINGSWORTH COUNTY—Continental Oil Co.'s Hughes Estate 1, dr 110 ft.

COTTLE COUNTY—T. J. Woodley et al's A. C. Dulaney 1, sd 3005 ft; Dulaney 2, rotary rig.

DALLAM COUNTY—H. A. Martin et al's James 1, co 1640 ft.

GRAY COUNTY—A. R. Anderson-Bock et al's Beaver-Bradford 1, sd 2830 ft. Danciger Oil & Ref. Co.'s J. B. Bowers 1-A, making 15 million ft gas 2706-10 ft, dr granite 2805 ft. W. H. Holmes' J. B. Morse 2, sd 3147 ft. Wilcox Oil & Gas Co.'s Coombs-Worley 1, estimated 20 bbls oil 2832-58 ft and 2868-74 ft, sd storage.

KING COUNTY—Hoffer Oil Corp.'s Frank Patten 1, sec 44, blk "A", E. L. Thompson sur, spudding.

HUTCHINSON COUNTY—American Ref. Co.'s Weatherly 1, rig. Amarillo Oil Co.'s L. Bivens 2-B, sd 3135 ft. W. T. Coble et al's Whittenburg 1, sd to std 2200 ft. Dixon Creek Oil Co.'s Smith 2, fsh tools 2730 ft. J. H. Middleton et al's J. Weatherly 1, dr 2620 ft. New Domain Oil & Gas Co.'s Barton 1, rerun 6⅝ cas 2965 ft. Panhandle Ref. Co. et al's Dial-Perkins 2, dr 970 ft; Dial-Perkins 3, combination rig; Whittenburg 1, lcn. J. R. Phillips et al's W. L. Kingsland 1, dr 660 ft; Kingsyand 2, rig. Tex-O Oil Co.'s Johnson Bros. 1, cemented 12½-inch cas 985 ft, td 1175 ft. Western Enterprise Oil & Gas Co.'s Smith 2, rig. Roxana Pet. Corp.'s H. E. Smith 1, rig in SE corner of SE¼ of NW¼ sec 14, M. & C. sur, blk "Y". Twin-Six Oil Co.'s Kingsland 1, dk in SE¼ of NW¼ of sec 6, M. & C. sur, blk "Y".

MOORE COUNTY—Amarillo Oil Co.'s Masterson 1-A, killing gas 2360 ft.

POTTER COUNTY—Amarillo Oil Co.'s W. H. Bush 1, dr by cas 3495 ft; L. Bivins 4-A, dr 525 ft.

WHEELER COUNTY—Angus et al's Ember 1, sd 1850 ft. Best Oil & Gas Co.'s Tindall 1, sd for 8¼ cas 1290 ft. Globe Oil Co.'s Williams-Laycock 1, mudding heavy gas 2140 ft. Mid-Way Oil Co.'s Williams-Laycock 1, materials. Mid-West Exploration Co.'s W. C. Company 1, rig; G. W. Porter 1, making 3 million ft gas 2090-2100 ft and 2108-12 ft, trace oil 2160 ft, dr 2255 ft; Williams-Laycock 3, 1100 ft, dr 2240 ft. Three-N Oil Co.'s Williams-Laycock 1, spraying 70 bbls oil 2171-76 ft, showing water 2360 ft. J. J. Rook et al's Phillips 1, sd for 8¼ cas 1300 ft. W. D. Sheddon et al's B. F. Westmoreland 1, dr 2030 ft. Texhoma Oil & Ref. Co.'s J. H. Jackson 1, sd 1850 ft oil in hole 2241-43 ft; Jackson 1-A, dr 1860 ft. Hal Vaughan & Pendleton's P. W. Krey 1, dr 2205 ft. Jim Whittington et al's O. T. Nicholson 1, dr granite 2485 ft.

Central West Texas Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Brown County—		
Gillette et al Prater 5	25	1322
Huffman et al Armstrong 1	*	1620
Mendenhall et al Newton 7	*	1256
Prairie Oil & Gas Co. Gaines 6	40	1284
Gaines 8	*	1505
Newton 11	*	1299
Reagan County—		
Big Lake Oil Co. University 28	545	3005
The California Co. University 1, sec 13, blk 8	*	4100
Sterling County—		
Pettit & Adkisson et al C. C. Reynolds 1	*	3002

DRILLING REPORT

BROWN COUNTY — Adams & Moody's Newton 1, rig. Cal-Bro Oil Synd.'s Prater 2, lcn. Canyon Oil & Gas Co.'s Ellsberry 4, rig. Cranfill & Reynolds' Stone-Willis 1, rig. Gillman et al's Newton 11, rig; Newton 13, dr 1015 ft; Newton 14, dr 965 ft; Newton 15 and 16, rigs. Gillman & McMurray's Teston 5, spudding. Mendenhall et al's Newton 6, dr 800 ft; Newton 8, rig. Moore et al's Kilgore 1, fsh 880 ft; Chambers 2, dr 260 ft; Baxter 2, dr 660 ft; Baxter 3, rig. Moore & Wilson's Gafford 4, dr 1100 ft. Prairie Oil & Gas Co.'s Armstrong 1, testing pay 1448-60 ft. Simms Oil Co.'s Gaines 1, sd 1485 ft. Stone et al's Byrd 1, dr 1030 ft. Rhodes & Higher's Prater 8, dr 1140 ft; Prater 9, spudding.

CALLAHAN COUNTY—Mook-Wakefield & Canyon Oil & Gas Co.'s McDonough 1, ur 1395 ft. Nichols et al's Davis 1, sd for cas 2200 ft. Urban et al's Finley 1, ur 1590 ft.

COLEMAN COUNTY—Canyon Oil & Gas Co.'s Morris 1, dr 2815 ft; Harris 1, set 15½ cas 485 ft. Duncan et al's Gray 1, dr 1755 ft.

PALO PINTO COUNTY — Burton-McKee Oil Corp.'s Strawn Coal Co. Fee 4, dr 3585 ft. J. D. Crawford & Singleton's L. Smith 1, sd 3028 ft. Jack Dalton Oil Co.'s Dalton 6, dr 3835 ft. Hughes et al's Dalton 1, dr 920 ft. E. T. Hart et al's Cardwell 2, dr 1860 ft. Moore & Sneboldt's Slemmons 1, rig; Stuart 3, lcn. Nelson Oil Synd.'s Owens 1, making

gas 1195 ft. Pender Prod. Co.'s Slemmons 2, dd, co 3510 ft; Slemmons 3, spudding; Rasmussen 2, rig. Westheimer & Daube's Fee 1 and 2, lcns.

BREWSTER COUNTY—Green Valley Oil Corp.'s J. P. Wilson 1, sec 8, blk 212, sd 1860 ft.

COKE COUNTY—West Virginia Oil Marketing Assn.'s J. R. Mins 1, dr lime 3265 ft.

CRANE COUNTY — Texas Development Co.'s Jax Cowden 2, sec 14, blk "X", Clark Machine.

CROCKETT COUNTY — Humble & Marland's L. P. Powell 1, flowing 22 bbls erecting pump, td 2647 ft; Harris Bros. 1, lcn in NE corner section 12, Washington County RR. sur, blk 3. Cumberland Oil & Gas Co.'s Couch 1, rig at C NE¼ sec 18, D. & S. E. RR. & T. T. RR. sur, blk Q-R. J. C. Cook (Wilcox) et al's University 1, sec 14, blk 29, rig. Crockett Drilling Synd.'s J. M. Shannon 2, spd and sd; Robt. Massey 1, dr 2080 ft. Jacobs & Williams' (was Red Ball) University 1, sec 5, blk 29, spd and sd. Marland Oil Co. et al's W. C. Corbett 1, lcn at C of SW¼ sec 19, blk B-2, G. C. & S. F. RR. sur. Ely et al's W. T. Noelke 1, lcn in SW corner sec 39, HE&WT RR. sur, blk GG. Wm. Shaffer et al's University 1, sec 9, blk 47, rig.

CULBERSON COUNTY — The California Co.'s Watkins et al 1, fsh 15¼-inch bit 934 ft. Grisham et al's Grisham 1, dr 615 ft. Pure Oil Co.'s Mrs. G. H. Guard 1, lcn at C of SW¼ sec 12, blk 63, TP RR. sur, Twsp. 2.

JEFF DAVIS COUNTY—Bill Little et al's Denton 1, 15 miles W of Valentine, lcn. Claude Byler et al's Wingo 1, lcn at C of NW¼ of E½ sec 20, blk G-25.

GARZA COUNTY—Gulf Prod. Co.'s J. B. Slaughter 1, set 10-inch cas 1740 ft. Marland Oil Co. et al's Connell 1, lcn at C of SE¼ sec 55, blk 5, GH&H RR. sur.

GLASSCOCK COUNTY — Gulf Prod. Co.'s L. S. McDowell 2-C, sec 3, blk 34, rig. Marland Oil Co. et al's G. Mook 1, lcn at C of SE¼ sec 27, blk 33, TP RR. sur., T-3-S.

HOWARD COUNTY—Deep Rock Oil Co.'s W. T. Scott-Hyman 1, lcn at C of SE¼ sec 88, blk 29, W. & N. RR. sur. Marland Oil Co. et al's M. H. O'Daniel 1, lcn at C of SE¼ sec 34, blk 34, blk 30, TP RR. sur., T-1-S.

IRION COUNTY—Chas. Denny et al's D. E. Hughes 1, sd 1470 ft. W. A. Stout et al's J. D. Sugg 1, sd 1830 ft.

KENT COUNTY—C. F. Greenwood & Marland Oil Co.'s J. E. Kuteman 1, sec 11, blk 4, fsh lugs in sand 3065 ft.

LOVING COUNTY—Rio Grande Oil Co.'s Sid Kyle 1, sec 12, blk 57, TP RR. sur, lcn. P-V Pet. Co.'s Russell 1, dr 3345 ft.

MITCHELL COUNTY — The California Co.'s Abrams 9, dr 1955 ft; Butler 2, dr 2320 ft; Missouri State Life Fee 1, dr 500 ft; H. C. Miller 1, dr 1385 ft; Womack 1, dr 1355 ft. R. G. Barnum & Geo. A. Henshaw's Scott 1, rig in SE¼ sec 32, S. P. Ry sur, blk 17. Eastland Oil Co.'s Keynard 4, rig. Marcus Synder et al's A. R. Keith 1, NW¼ sec 10, blk 28, TP RR. sur T-1-N, spd and sd. Magnolia Pet. Co.'s Womack 1, dr 365 ft; W. H. Badgett 1, cemt cas 2617 ft; Mary Foster 1, dr 1620 ft. S. A. Sloan et al's Scott Estate 1, dr 2895 ft.

MARTIN COUNTY — Humble Oil & Ref. Co.'s C. C. Slaughter 1, sec 8, blk 35, dr 1400 ft.

MIDLAND COUNTY—Rook-Zimmerman et al's M. E. Hill 1, sec 8, TP RR. sur blk 37, dr 600 ft.

PECOS COUNTY—Gulf Prod. Co.'s White-Baker 1, sec 85, blk 194. Dixie Oil Co.'s Sherbino 1, sec 51, G. C. & S. F. sur, blk C-4, spudding. Tom Adams Oil Co.'s Devlin 1, 17 miles NW of Fort Stockton, sd with show oil 1005 ft.

PRESIDIO COUNTY—John Sward et al's Tootle 1, sd 900 ft.

REAGAN COUNTY — Big Lake Oil Co.'s University 17, dd, reset cas 2795 ft; University 20, fsh tools 2500 ft; University 30, rig; University 31, dr 1020 ft; University 32, dr 2325 ft; University 33, dr 1820 ft; University 34, dr 2395 ft; University 35, reset 6⅝ cas 2540 ft; University 36, fsh tools 2535 ft; University 37, fsh tools 2440 ft; University 38, pull big pipe 2820 ft; University 39, dr by tools 2545 ft; University 40, fsh bit 1675 ft; University 41, fsh 1915 ft; University 42, ur 2535 ft; University 43, 44, 45 and 46, rigs. H. D. Camp et al's University 1, sec 34, blk 11, sd 200 ft. Gulf Prod. Co.'s University 2, sec 1, blk 1, dr 375 ft. B. H. Cogdell et al's University 1, sec 23, blk 8, dr 2740 ft. W. H. Dunning et al's J. D. Sugg 1, sec 185, TP sur, blk 2, sd 785 ft. Ben Simon et al's University 1, blk 11, rig. Marland Oil Co. et al's M. J. Wilson 1, lcn in NE corner sec 1199, CCSD and RGNG RR. sur, L. V. Tannehill et al's University 1, sec 15, blk 11, lcn. University Oil Co.'s University 1, sec 17, blk. 10, sd 2860 ft.

SCURRY COUNTY—Camp Springs Oil & Ref. Co.'s Guinn 1, fsh cas 3865 ft. The California Co.'s C. E. Wood 1, dr 425 ft. Northwest Co.'s Newman 1, dr 1045 ft. Morrison-Thompson's Mary E. Towle 1, rig. J. A. Hood et al's J. W. Burris 1, sr 3000 ft.

STONEWALL COUNTY—Elder Nance et al's Ward 1, reaming 2120 ft; J. M. Thomas 1, dr 660 ft.

STERLING COUNTY — Chicago-Texas Oil & Gas Co.'s W. L. Foster 1, fsh bit 1975 ft; D. C. Durham 1, sd 2250 ft; Durham 2, sd 1410 ft. Co-Operative Lease & Dev. Co.'s Douthitt 1, sd 2280 ft. George Northrup & Hall's I. L. Ellwood 1, sd 2725 ft. Kanawah-Angelo Oil Co.'s L. T. Clark 1, dr 2615 ft. Harty et al's Reynolds 1, spd and sd. Wrightsman et al's W. L. Foster 1, rig; G. R. Hull 1, (was Fidelity) co 1865 ft. White-Eagle Oil & Ref. Co.'s H. M. Mills 1, sec 33, blk 22, H&TC sur, spudding.

SUTTON COUNTY—J. W. Sorrelle et al's Clarkson et al 1, lcn in sec 17, blk A-9, Georgetown RR. sur.

TOM GREEN COUNTY—Denny et al's C. A. Broome 1, star machine lcn in blk 673, A. Wallstein sur.

UPTON COUNTY — Big Mesa Oil Co.'s University 1, sec 17, blk 3, ur 12¾ cas 700 ft. W. P. Morris et al's H. M. Halff 1, sd 655 ft. Suggs & Chancellor's University 1, sec 6, blk 4, spd and sd. George McCamey et al's Mrs. M. L. Baker 1, sec 8, Grooms sur, dk.

Coastal Wildcats

CHAMBERS COUNTY — W. C. Moore & Associates' Blanke 1, on Blanke tract, N. E. quarter H. & T. C. sec 39, 1200 ft W of E line and 500 ft S of N line, dr below 200 ft.

FT. BEND COUNTY — Gulf Prod. Co.'s Moore 4, John M. Moore lease, dr 1765 ft. James W. Rich et al's Moore-Hager 2, at Big Creek, 300 ft NE No. 1, SE side of dome, waiting for rig. Rycade Oil Co.'s Fritz Meier 1, 800 ft E of SW cor and 200 ft N of S line of F. Meier 207.7-acre tract, drill stem stuck at 3022 ft in gumbo; Fritz Meier 2, 1550 ft E of SW cor and 200 ft N of S line of F. Meier 207.7-acre tract dr at 1219 in hard sand and lime. Texas Co.'s G. W. Armstrong 1, James Scott sur, 50 ft to N and W lines SW of Needville, dr at 1750 ft in gumbo; Robinson 1, at Blue Ridge, dr at 3090 ft in rock. Pathfinder Oil Co.'s Pickney 1, reaming at 3860 ft.

GALVESTON COUNTY—Gulf Prod. Co.'s George E. Smith 3, at High Island, 300 ft E No. 2, waiting for water.

HARDIN COUNTY—Vacuum Oil Co.'s R. Teel 1, at Saratoga, 350 ft N and 200 ft W of most easterly SE cor, ready to spud in.

HARRIS COUNTY—Texas Co.'s Warren 3, 3 miles S Hockley, 750 ft NW No. 2, 2463 ft; Warren 4, near Hockley, dr at 371 ft. Rycade Oil Corp.'s Northsworthy 1, dr at 1055 ft in gumbo. Retrieve Oil Co.'s Westheimer 1, 300 ft from N line and 300 ft from W line on Wiley Smith sur, dr at 1875 ft in blue gumbo.

JACKSON COUNTY — Houston Oil Co.'s Rose & Sample 1, 7 miles W Edna, Rose & Sample tract, dr at 3263 ft in sand; Westoff 1, 1659 ft N and 50 ft W of N cor George Hecht 200-acre tract, Pedro Gallardo sur, dr at 3150 ft in sandy shale. Vanderbilt Pet. Co.'s Seliner 1, 4 miles N of Vanderbilt, C. W. Hall subdivision of Harwood Burns ranch dr at 2960 ft.

JEFFERSON COUNTY—Houston Oil Co.'s Fanny Crow 1, dr at 2103 ft in gumbo and lime. Gulf Prod. Co.'s Thomas 2, at Fannette, near Hampshire, rigging up.

MATAGORDA COUNTY—Gulf Prod. Co.'s Craig 1, rigging up. Rycade Oil Co.'s Gray 3, at Markham, 1050 ft S of NE cor and 500 ft W of E line, blk 2, W. H. Gray land, dr at 2044 ft in hard shale and lime. Bryan Prod. Co. and Hamm et al's Bryan 1, dr at 3875 ft. Sheppard Mound Oil Co.'s Hawkins 4, dr at 1750 ft.

WALKER COUNTY—Big Ridge Oil & Gas Co.'s No. 1, at Weisers Bluff, 14 miles N Huntsville, 12 miles W Riverside, Eastham sur, sd; No. 3, 8 miles SW No. 2, between Nelson and S Bedias Creeks, dr at 600 ft.

WHARTON COUNTY — Gulf Prod. Co.'s Felder 3, 20 ft to left and 1735 ft to N line, blk 3, S. Ingram sur, dr at 4700 ft. Texas Co.'s Taylor 2, 1100 ft SE No. 1, at Boling, dr at 2104 ft.

LOUISIANA GULF COAST—Rycade Oil Corp.'s Calcasieu 1, in Calcasieu Parish, dr at 1030 in sand and shale; Hooks 1, at Lake Arthur, moving material.

San Antonio District Wildcats

COMPLETIONS

Company, Well, Location—	Initial Production Bbls.	Depth
Caldwell County—		
Cope's No. 2 Beaty	1000	1250
Gulf Prod. Co.'s No. 15	300	....
No. 16	300	....
Texas Co.'s No. 5	800	....
Jim Hogg County—		
O. W. Killam's No. 6	1000	2055

DRILLING REPORT

BEXAR COUNTY—Humble O. & R. Co.'s N. C. Cassin 1, dr 1060 ft; Menchaca 1, dk; Minna Coreth 1, dr below 1050 ft. Grayburg Oil Co.'s Palfrey 1, reported abn at 2000 ft.

BASTROP COUNTY — Cardinal Oil Co.'s No. 1, dr. C. V. Patton's Glover 1, no report. Quaker Oil Co.'s Howard Smith 1, dr. Jake Jarmon's Watkins 1, sd for water. Commodore Oil Co.'s Zandy Hart 1, dr.

DUVAL COUNTY — Co-Operative Drilling Co.'s Dinn 1, sd 2070 ft. Associated Oil Co.'s Sutherland 1, dr. Mesquite Oil Co.'s No. 1, setting liner. Booth Interests' W. T. Peters ranch 1, lcn. O. W. Killam's Benavides 3, sd 2650 ft; 4, dr 1621 ft. Humble Oil Co.'s Pusch 1, r to set 6-inch at 2340 ft. United States Gas & Oil Co.'s Peters 3, dr.

GUADALUPE COUNTY — L. K. Hughes Dev. Co.'s Allen 20, no report. Allen Burman's Bailey 1, dr 2200 ft; reported oil and gas showings. Magnolia Oil Co.'s Nos. 13 and 14, dr. Jennings et al's Vogel, preparing to set 10-inch casing. Weinert et al's Nolte farm 1, lcn. Stebbins Oil & Gasoline Co.'s Lenz 1, dk. Scrivener's Vetter 1, dr 1450 ft. Southwestern Extension Synd's Willmann 1, rigging up. M. O. Rayor's Jessie O. Lipscomb 1, dr. McClannahan's Herman Lenz 1, dr 2050 ft. Roxana Pet. Co.'s Herman Schmidt 1, dk. Joe Dunning et al's Hugo Vetter 1, dr. J. M. Davis et al Koch 1, sd for water; Augusta Hoese 1, sd 1629 ft. York Creek Oil Co.'s Fulshear 1, dr. Atlantic Oil Co.'s Nolte 1, spudded in.

JIM HOGG COUNTY — Buchanan-Plateau Oil Co.'s No. 4, set casing. Rydal-Rycade Oil Co.'s W. P. Allen 1, sur 21, dr 2990 ft in hard lime and shale. Simms Oil Co.'s Wood 1, sur 54, dr. J. W. Pippin et al's Palacious 2, tested at 1305 ft. Kirkpatrick-Lucas' No. 1, 60 million cu. ft gasser at 2005 ft. Plateu Oil Co.'s Martinez 5, sd 2066 ft. Magnolia Pet. Co.'s Martinez 5, dr 2076 ft. Daniels & English's No. 1, blk 8, sur 1617, dr. Texas Co.'s Jennings 1, casing set at 902 ft. Big Bend Oil Co.'s Martinez 5, cemented 6⅝-inch casing at 2030 ft; 6, dr below 1050 ft. Buchanan et al's No. 4, dr below 1800 ft. Grayburg Oil Co.'s Weil 1, rigging up. Kitselman & St. Albans' No. 18, spudded in. Wolcott-Morgan et al's No. 1, sur 688, dr; oil showing. Russell-Hoffman's David Vela 1, dk; Givens 1, rigging up. Killam-Lang's Vela 2, setting up. Mirando Oil Co.'s No. 11, set casing at 2048 ft. Rydal Oil Co.'s Vela 1, dr 900 ft. San-Tex Oil Co.'s No. 1, sur 262, dr. Texo Oil Co.'s Lopez 4, dr 1978 ft. Weber Oil Co.'s Holbein 4, dr

3641 ft. Plateau-Wheat's Nos. 3, dks; 4 and 5, lcns. O. W. Killam's Nos. 5, set casing at 2002 ft. Plateau-Wheat's Nos. 3, dk; 4 and 5, ft; 8, dr 1300 ft; 9 and 10, dks. Plateau-Texas-Pacific's Nos. 2, dr; 6, set casing at 2002 ft. Plateau-Wheat's Nos. 3, dk; 4and 5, lcns. Elliott-Texas-Pacific's No. 2, dr.

ZAPATA COUNTY — H. J. McMullen's Serapio Vela 12 and 3, lcns. R. K. Bateman et al's No. 1, sur 617, dr. Texas Co.'s Cuellar 1, lcn; Jennings 1, tested 40 ft sand at 940 ft. Chandlier-Gier's No. 1, sur 2, sd 1890 ft.

Oklahoma Wildcats

ALFALFA COUNTY — McGinnis & Ward's No. 1 Watts, C SE NE SW 21-27-10w, sd 3504 ft.

ATOKA COUNTY—Henson et al's No. 1 Dabney, C SE NW 17-4-11w, fsh 3490 ft. Wapanucka Dev. Co.'s No. 1 Underwood, C W L SE SE 28-15-10w, sd 1343 ft.

BLAINE COUNTY—Mayers et al's Chronister 1, SEc NW NW 7-18-15w, sd 965 ft. Okomo Oil Co.'s Ekleman 1, SEc 21-15-10w, sd 2610 ft.

BRYAN COUNTY—Alexander's Hampton 1, SEc NE 26-7-11, sd 1400 ft.

CANADIAN COUNTY — Thos. Revelle's Dawson 1, C SE SE NW 20-26-9w, sd 3065 ft. Carrol et al's Setter 1, SEc 2-13-8w, sd 100 ft. C. D. Jones et al's Sanders 1, C NE NE NE 29-11-7w, dr 2016 ft.

CLEVELAND COUNTY—Garr Oil Co.'s Holland 1, NEc SE 31-10-4, sd 2626 ft.

GRANT COUNTY—Embry et al's Edwards 1, C SE SE NW 20-26-4, sd 1000 ft. Midwest & Gulf's Moon 1, NEc NW 8-27-8w, sd 2490 ft. Frank Travers et al's Fuss 1, SWc NW NW 3-27-4w, sd 1250 ft.

HUGHES COUNTY — Mathers & Skelly's McClain 1, C SW SW 4-5-11, sd 3026 ft. Walton, Snyder & Marshall's King 1, C E L NE NW 6-6-10, fsh 3675 ft. Atkins et al's Sewell 1, C SE SW SW 14-7-9, dr 2020 ft. Parmenter et al's Stewart 1, C SW SE 11-5-8, rig. Henry Greis & Kerr's Pearson 1, C SE NE NE 30-5-10, lcn.

JEFFERSON COUNTY—Barker et al's Major 1, C SE SW 34-5-6w, spudded and sd. Godley Oil Co.'s Woodworth 1, C NE NW 36-5-4w, sd 1765 ft. Pauline O. & R. Co.'s Graver 1, C NE SW 17-5-8w, sd 2225 ft. Pure Oil Co.'s Howard 1, SWc NE 25-4-11w, dr 1420 ft.

KAY COUNTY — Hickman & Barnhard's Sheets 1, C NW SW SE 25-22-2w, sd 997 ft.

KIOWA COUNTY—Conner et al's No. 2, NEc NW NW 34-7-16w, sd 2590 ft. Alcorn Oil Co.'s No. 1, NEc SE SE SW 13-7-16w, dr 2630 ft. C. E. Reynolds' Smart 1, C E½ SE 12-6-17w, rig.

LINCOLN COUNTY—P. & R. Corp.'s Hanzig 1, NWc SW 14-13-6, dr 3010 ft. Douglas Oil Co.'s Ewing 1, NEc 7-13-3, dr 2810 ft. Eugene Coste & Co.'s Ross-Fortune 1, SEc NW 26-12-3, dr 4090 ft. Wilcox O. & G. Co.'s Smith 1, SEc NW NE 12-12-3, sd 4505 ft. F. O. Howarth's Harris 1, SEc NE 22-15-2, dr 4435 ft. Santrock Drilling Co.'s No. 1, SEc NW 17-15-3, sd 930 ft. Ruby et al's Cull 1, NEc NW 36-15-4, r 3705 ft.

LOGAN COUNTY—Skelly Oil Co.'s Newman 1, NWc NW 32-19-3w, sd 3007 ft. Franklin Oil Assn.'s Moore 1, NWc SE SE 35-7-4w, fsh 2520 ft. Haley & Pioneer Pet. Co.'s Quair 1, SWc SE 33-19-3w, sd 270 ft. Blackford O. & G. Co.'s Lair 1, C S L N½ SE 28-16-1w, dr 1520 ft. Magnolia Pet. Co.'s Prichard 1, NWc 23-15-1e, dr 4100 ft.

LOVE COUNTY—Drillers Syndicate Oil Co.'s Wilson 1, NWc SE 11-7-2, sd 2830 ft. Magnolia Pet. Co.'s Crowe 1, C NE NE SE 13-8-2, sd 2553 ft. Smyer & Stein's Gray, C SE SE 12-9-1, rig. Jackson & Askew's Havenkamp 1, C SW SW NW 27-7-2, dr 2185 ft.

MAJOR COUNTY—Texas Prod. Oil Co.'s Basin 1, SWc 6-22-14w, sd 200 ft. Franz & Slick's Gray 1, C NW 36-21-11w, sd 1000 ft.

PONTOTOC COUNTY—Highland Oil Co.'s Hatcher 1, C NW SW 4-4-5, sd 2285 ft. Dixie Oil Co.'s Moran 1, SW SW NE 33-2-4, dr 825 ft.

POTTAWATOMIE COUNTY — Ossie Oil Co.'s Howell 1, SWc NE 17-10-2, sd 3363 ft. The Texas Co.'s Allenbaugh 1, SEc SW 3-11-6, fsh 1100 ft. Davie Detrick's McGathey 1, SEc 10-6-2, sd 3850 ft. H. G. Gwinnup's Floyd 1, SW SE 12-11-3, sd 3655 ft. Pierce Oil Corp.'s Magett 1, NWc 25-10-4, sd 460 ft. McMann Oil Co.'s Heghan 1, SWc NW 19-7-4, sd 100 ft. Halmond Osmond et al's Fiddler 1, SEc NW 4-5-5, sd 545 ft. Central National Oil Co.'s Toney 1, C SW SW SW 28-10-4, dr 860 ft.

ROGER MILLS COUNTY—Twin Hills Oil Co.'s McClure 1, NWc 15-16-26w sd 4310 ft. Trio Oil Co.'s No. 1, SEc NW SW 3-13-26w, sd 3200 ft.

SEMINOLE COUNTY—Maxwell & Carty's Christie 1, C NE NW 33-6-6, sd 3000 ft. Link Oil Co.'s Caroline 1, C SE NW 14-6-7, sd 2840 ft. R. F. Garland's Farlin 1, C NE NW 6-6-8, sd 1390 ft. Central National Oil Co.'s Harjo 1, C NE SW NE 14-11-7, sd 3750 ft. Transcontinental Oil Co.'s Davis 1, NE SE 22-7-7, co 3160 ft. Bryan Bros.' Walker 1, C SE SE SE 4-7-6, dr 1610 ft. Riverside & Kinney's Nitley 1, C S½ NE SE 24-5-5, rig.

WOODS COUNTY—Victor Oil Co.'s Van Buskirk 1, SWc SE 10-25-15w, sd 960 ft.

WASHITA COUNTY—Meridian Pet. Co.'s No. 1, SE SE SE 14-9-15w, lcn.

Kansas Wildcats

BARBER COUNTY—R. B. Brown's No. 1, NWc 14-34-11w, fsh 2240 ft.

BARTON COUNTY — Cheyenne Oil Co.'s Sooy 1, SWc SW 27-18-12w, sd 3525 ft. Haynes et al's Taul 1, NWc 21-12-12w, sd 2100 ft. John Herron's No. 1, SEc NE 22-18-13w, dr 4190 ft. Huffine et al's Smith 1, C NE SW 21-19-12w, sd 1700 ft.

CLARK COUNTY—Watchorn O. & G. Co.'s Morrison 1, SEc NE NE 20-32-21w, fsh 5308 ft.

CLOUD COUNTY — Livingston's Murdock 1, SEc 6-6-4w, dr 1770 ft.

GEARY COUNTY — Liberty-Texas' Wright 1, NEc 9-12-6, sd 750 ft. Liberty-Texas Oil Co.'s Foster 1, NEc SW 3-12-6, sd 2000 ft.

GRAHAM COUNTY—Keyes Bros. & Marine's Thaxton 1, SEc NW 23-8-24w, r 2000 ft. Gruen & Shiler's Baker 1, NWc SE NW 17-10-24w, rig.

KINGMAN COUNTY—Hale et al's Graber 1, SWc NW 34-27-7w, sd 3527 ft, hfw.

LABETTE COUNTY—Ark Fuel Oil Co.'s Sparks 1, NEc SE SE 14-31-17, sd 1110 ft.

LINCOLN COUNTY — Equite Oil Co.'s Jellison, NWc SE 19-13-9w, 3250 ft. Scott & Collins' Stone 1, SEc SW NE 19-11-6w, sd 500 ft.

MITCHELL COUNTY—Wilcox Oil & Gas Co.'s Elders 1, NWc SW NW 23-6-9w, dr 3470 ft.

NEMAHA COUNTY — Nemaha O. & G. Co.'s Meyers 1, NWc 19-3-11, sd 3250 ft.

OSAGE COUNTY—Rodgers & Bittle's Bertha 1, SEc NW 22-17-16, lcn. Mul-Vit Dev. Co.'s Neil 1, NEc NW SW NE 8-17-17, sd 2735 ft. Baker et al's No. 1, C SE SE 3-15-15-15, sd 260 ft.

RICE COUNTY—Stamey's Barnes 1, SEc NE 21-20-6w, sd 3640 ft, show oil. Jasper & Beschka's Walker 1, SWc NE 10-18-6w, sd 2200 ft.

RILEY COUNTY—Pawnee O. & G. Co.'s Marks 1, SEc NE NW 26-10-6, sd 2030 ft.

ROOKS COUNTY—Keyes Pet. Co.'s Sandon 1, NWc SW SE 7-8-20w, spd and sd. C. Findeiss et al's Minx, SWc 25-10-19w, sd 2485 ft.

SALINE COUNTY — Thrall et al's No. 1, SEc NE NW 15-15-4w, sd 1010 ft.

SEDGWICK COUNTY — J. H. Liggett's Funk 1, NEc NW 11-26-1, fsh 3200 ft. L. E. Craig et al's Mean 1, NWc NW 26-28-1w, dr 3802 ft. Curtis et al's Duncan 1, SEc NW NW 19-29-1w, rig. Allison & Fitzwilliams' Webb 1, C NE 21-29-3w, spd and sd.

SEWARD COUNTY — C. T. Dev. Co.'s Woods 1, NWc NE 34-34-34w, sd 700 ft. Seward O. & G. Co.'s Selsey 1, NEc NW 2-23-33, sd 2785 ft, show gas.

SUMNER COUNTY — The Texas Co.'s Nixon 1, SWc SE SE 12-35-1, dr 2450 ft. Foster et al's French 1, NWc 13-31-2, lcn. Phillips Pet. Co.'s Armspiger 1, NWc 17-34-1, dr 3787 ft. Wilcox O. & G. Co.'s Stayton 1, NWc SW 5-32-2w, rig.

TREGO COUNTY—Keyes Pet. Co.'s Davis 1, NEc SW 16-11-25w, dr 15 ft. Keyes Pet. Co.'s Walsh 1, NWc SE 5-11-25w, sd 1450 ft. Walsh 2, SWc SE SW 5-11-25w, sd 1550 ft.

WABAUNSEE COUNTY—Williams et al's No. 1, NEc SW 15-13-12, sd 3600 ft.

WOODSON COUNTY—Dave Alter et al's Hunt 1, NWc SW 13-25-14, dr 700 ft. Harris et al's Greese 1, NWc SE 35-25-12, lcn.

Louisiana Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Caddo Parish—		
Woodley & Collins' McVea 1, 23-19-14	*	2662
De Soto Parish—		
Fortuna Oil Co.'s Bishop-Robinson (Ulrey) 1, 22-11-12	7	2992
La Salle Parish—		
Ford et al's Tullos 1, 23-10-1e.....	*	1526
Urania Petroleum Co.'s Urania Lumber Co. 7, 19-10-2e	2	1553
Sabine Parish—		
Emlet et al's Bowman-Hicks Lumber Co. 4, 8-7-12	*	1846
Bowman-Hicks Lumber Co. 5, 9-8-12	*	2633

DRILLING REPORT

BIENVILLE PARISH—Evans & Brown's Miles 1, 20-18-7, testing 2030 ft. J. E. Smitherman's Hunt-Hodges 1, 8-15-5, rig.

BOSSIER PARISH—Best Oil Co.'s Finouef 1, 8-18-12, sd 170 ft. Corbett et al's Murff 1, 18-17-11, dk. Kendrick et al's Webster 1, 9-18-11, rig. Wilder & Cushman's Lewiston 1, 13-16-12, dr 940 ft.

CADDO PARISH—Dixie Oil Co.'s Dillion 53, 13-21-15, setting 4½-inch 3689 ft, having trouble; Jolly 1, 27-22-15, coring 3260 ft. Flournoy et al's Simpson 1, 8-16-15, dr 2425 ft. Fortuna Oil Co.'s C. L. B. 2, 8-20-15, co 2946 ft; Mitchell 1, 17-18-16, dr 3250 ft. Haynes Bros.' Louisiana L. S. and P. 1 8-19-16, dr 2895 ft. Henderson et al's Caldwell 1, 29-22-15, dr 450 ft. Ridge Oil Corp.'s Williams 1, 3-15-15, dk. R. O. Roy & Co.'s Hutchinson 1, 34-16-12, testing 1906 ft. The Texas Co.'s Jeems Bayou 1, 15-20-16, r 3548 ft.

CLAIBORNE PARISH — Clark & Melat's Heard 1, 5-21-6, sd 2165 ft. Collins & Woodley's McDonald 1, 26-21-5, sd 2500 ft. Evans & McMurphy's Taylor 2, 5-19-5, dk. Triangle Drilling Co.'s Cox 1, 7-19-5, sd 2735 ft; Brown 1, 1-19-6, dr 860 ft.

DE SOTO PARISH — Fortuna Oil Co.'s Alexander 1, 32-12-15, dr 2960 ft. Gulf Ref. Co.'s Williams C-18, 31-13-11, dr 2990 ft. Tarver et al's Meadows 1, 2-14-10, dr 700 ft. Ulrey et al's Scott 1, 21-11-12, dr 2175 ft.

GRANT PARISH — Dowling & McCurry's Holmes 1, 20-19-1e, dk. Finn Construction Co.'s Ball 3, 14-7-1w, dr 3000 ft.

JACKSON PARISH — Big Chief Oil Co.'s Rymes 1, 13-14-4w, fsh 2150 ft.

LA SALLE PARISH—Davis et al's Russell 1, 24-10-1e, rig. Freeman & Hawkins' Urania 1, 14-10-1e, dk. Gould & Monroe Drilling Co.'s Harper 1, 23-10-1e, ru air jammer, 1496 ft. Helm & Burch's Urania 1, 28-11-2e, testing 1392 ft. Imperial O. & G. Co.'s Urania 1, 10-10-1e, dr 1560 ft. Love et al's Tremont Lumber 1, 30-10-2e, flowed oil, now dead, 1526 ft. Bill Rowe's Hardtner 1, 19-10-2e, dr 1400 ft. Wright et al's Love 1, 16-11-2e, dr 320 ft.

LINCOLN PARISH—Buckner et al's Barrett 1, 13-20-3w, dr 2020 ft. Ruston Drilling Co.'s Richardson 1, 7-18-2w, dr 2050 ft.

MOREHOUSE PARISH—Boisseau et al's Sullivan 1, 11-21-7e, lcn.

OUACHITA PARISH — Dickson & Frue's

Goodwin 1, 24-18-2e, sw 2860 ft. Palmer Corp.'s (White) Jones 1, 6-16-5e, reset 6-inch 2422 ft.

SABINE PARISH—Emlet et al's Bowman-Hicks 6, 8-7-12, dr 400 ft. Toro Pet. Co.'s Wyatt 1, 18-4-11, dr 1450 ft.

UNION PARISH—Simms Oil Co.'s Hammock 1, 22-22-3w, dr 200 ft.

WEBSTER PARISH — Fortuna Oil Co.'s Bible 1, 8-20-9, fsh 2180 ft. Palmer Corp.'s Davis 1, Cotton Valley deep test, 23-21-10, sw in Woodbine sand at 3332 ft.

WINN PARISH—Ohio Oil Co.'s Rowland 1, 5-12-1w, dr 840 ft.

Arkansas Wildcats

Company, Well, Location—	COMPLETION Initial Production Bbls.	Depth
Miller County—		
Humble Oil & Ref. Co.'s Goodwon 1, 30-16-27	* 1319	

DRILLING REPORT

BRADLEY COUNTY—The Texas Co.'s Saline Lumber 1, 11-17-10, dr 1810 ft.

CALHOUN COUNTY — Klotz & Thomas' Forest City Box 1, 14-16-14, sw 2578 ft, to deepen. Murdock et al's Eagle Mills 1, 29-12-15, sd for water 1717 ft.

COLUMBIA COUNTY—Arkansas Fuel Oil Co.'s Longino-Goode 1, 14-18-20, coring 2104 ft. Greeson et al's Pearce 1, 3-18-19, dr 1200 ft. Gulf Ref. Co.'s Hines 1, 17-17-18, dr 2015 ft. Meier et al's Gantt 1, 15-17-22, dk. Phillips et al's Davis 1, 14-18-21, testing 2755 ft. Pluto Oil Co.'s Dickens 1, 20-18-22, dk; Robinson 2, 23-18-23, coring 710 ft. Wingfield & Mitchell's Bodcau Lumber 1, 4-20-21, sd 2024 ft.

DREW COUNTY—Graves et al's Karnes 1, 10-13-6, dr 2700 ft. McClintock et al's Ogle 1, 35-13-5, set 10-inch 200 ft. Spooner et al's Meyer 1, 4-16-17, sd 50 ft.

HEMPSTEAD COUNTY—Grassy Lake Oil Assn.'s Gun Club 1, 27-12-27, sd 2100 ft. Tarver et al's Swafford 1, 14-11-25, dr 780 ft. Zingg et al's Sutton 1, 9-11-23, dr 800 ft. Wooten et al's Clarke 1, 22-11-24, sd 2040 ft.

LA FAYETTE COUNTY—Estes & Oliver's Bodcau 1, 13-18-24, dr 1890 ft. Ken-Saw Pet. Co.'s Red River Valley 2, 3-20-24, dr 2450 ft. Humble O. & R. Co.'s Bradshaw 1, 26-16-25, sd 590 ft; Bodcau Lumber 1, 16-15-22, dr 1215 ft; Johnson 1, 23-16-25, rig; Shirtliff 1, 3-16-23, resetting 10-inch 132 ft.

MILLER COUNTY—Copeland et al's Wiseman 1, 36-15-27, sd 1150 ft. Davidson et al's Faulk 1, 27-17-27, sd 900 ft. Gillespie et al's Fee 1, 2-15-26, dr 800 ft. Humble O. & R. Co.'s Vann 1, 36-16-28, dr 600 ft; Fouke 1, 36-16-27, dr 50 ft.

NEVADA COUNTY — Dudney-Thompson Synd.'s May 1, 23-14-22, rig. Falcon Drilling Co.'s Weaver 1, 6-13-21, dr 300 ft. Greeson et al's Ellis 1, 2-15-21, reset 10-inch 150 ft. Steele et al's Fincher 1, 9-15-22, rig. White et al's Hamilton 1, 34-14-22, dr 1225 ft.

OUACHITA COUNTY — Buffalo Oil Co.'s Morgan 1, 22-15-19, wosr 2226 ft; Morgan 2, 22-15-19, dr 1475 ft. Jones et al's Wilson 1, 26-15-18, fsh 2327 ft. Hude & Aarnes' Brown 2, 13-15-20, Stephens deep test, rigging up to deepen.

PIKE COUNTY—Strawn et al's Banks 1, 11-8-25, sd 227 ft.

UNION COUNTY — Magnolia Pet. Co.'s Chandler 1, 4-19-14, dr 2860 ft. Minnesota Oil Co.'s Davis 1, 31-16-14, fsh 2800 ft. Ohio Oil Co.'s Arkansas Timber 1, 21-18-10, set 10-inch 628 ft. Ward et al's Goodwin 1, 16-16-14, sdtr 2581 ft.

PERMITS GRANTED FOR NEW WELLS

Weekly Comparison of New Wells

Following is a condensed table giving a comparison of permits or locations made for new wells in Kansas, Oklahoma, Arkansas, Louisiana, Texas and California:

	Number of Wells for Week Ending															
	Mar. 27	April 3	April 10	April 17	April 24	May 1	May 8	May 15	May 22	May 29	June 5	June 12	June 19	June 26	July 3	July 10
Kansas .	55	34	23	37	38	26	32	32	27	29	44	40	19	29	50	39
Oklahoma	73	115	107	96	82	81	86	94	95	114	106	93	104	115	80	96
Arkansas	80	54	55	34	64	60	49	31	77	62	67	40	64	41	*4	53
Louisiana	14	4	9	14	20	7	10	7	12	8	16	18	8	8	11	9
Texas . .	198	187	214	213	215	147	144	208	130	167	221	198	204	206	168	176
California	36	42	26	28	40	27	26	34	29	33	24	33	37	30	49	34
Total .	456	436	434	422	459	348	347	406	370	413	478	422	436	429	362	407

*Smackover permits not available for past week; will be included in next issue.

ARKANSAS

Miller County—Humble O. & R. Co.'s Vann 1, 36-16-28, SEc NE¼ NE¼.

Ouachita County—Atlantic O. P. Co.'s Berg 5, 30-15-15, 150 ft N and W of SEc NE¼ SE¼. Bailey & Murray's Rhoten B-3, 32-15-15, 150 ft N and 570 ft E of SWc SW¼ NW¼, old well to be deepened. Buffalo Oil Co.'s Morgan 2, 22-15-19, SWc SE¼ NW¼. Empire G. & F. Co.'s Bradley 1, 30-15-15, SEc SW¼ SE¼; Laney 5, 31-15-15, 200 ft N and 600 ft E of SWc SW¼ SW¼. Gulf Ref. Co.'s R. Bennett 7, 33-15-15, 1120 ft N and 1520 ft E of SWc; B. Goodwin 8, 32-15-15, 2440 ft S and 200 ft W of center; J. Goodwin 6, 32-15-15, 1120 ft S and 200 ft W of center; J. Goodwin 8, 5-16-15, 2840 ft N and 1120 ft W of center; J. Goodwin 9, 5-16-15, 2840 ft N and 1650 ft W of center; J. Goodwin 10, 5-16-15, 200 ft S and 290 ft E of NWc; Umstead 5, 32-15-15, 1120 ft S and 200 ft E of NWc; Umstead 14, 33-15-15, 330 ft S and 990 ft E of center; Umstead 15, 33-15-15, 1120 ft S and 200 ft E of center; Umstead 16, 33-15-15, 1120 ft S and 1520 ft E of center; Umstead 17, 33-15-15, 1120 ft S and E of center. Hude & Aarnes' Brown 2, 13-15-20, 330 ft N and E of SWc SW¼ SE¼, old well in Stephens field, to be deepened. Magnolia Pet. Co.'s J. Goodwin 9, 5-16-15, SWc N½ Lot 2 NW¼. Marine Oil Co.'s Snyder 9, 34-15-15, center of south line NW¼ SW¼. Natural Gas & Pet. Co.'s Laney 6, 31-15-15, center of north line E½ NW¼ SE¼. Owenwood Oil Corp.'s Snyder 10, 34-15-15, center of north line SW¼ SW¼. Roxana Pet. Corp.'s Bennett A-3, 32-15-15, SWc NE¼ NW¼. Sure Oil Corp.'s Hill 3, 5-16-15, 660 ft N and 330 ft W of SEc SW¼ NE¼; Joyce 4, 34-15-15, 660 ft S and 330 ft W of NEc SW¼ SW¼; Laney B-4, 31-15-15, center of south line NW¼ NE¼. The Texas Co.'s Berry 12, 33-15-15, NEc SW¼ NW¼. Wilroy et al's Berg 1, 32-15-15, SEc SW¼ NE¼.

Union County—Amerada Pet. Corp.'s Calloway 6, 4-16-15, NEc NW¼ SE¼; Giller 5, 15-16-15, NWc NE¼ NE¼; Lyall 10, 3-16-15, SEc NE¼ NW¼. Barbore et al's Houston 1, 12-16-16, SEc SE¼ NE¼. Crosby et al's Lawton A-6, 10-16-15, SEc SE¼ SW¼. Eason et al's Murphy 5, 15-16-15, SWc NW¼ NW¼. Gulf Ref. Co.'s Flenniken 17, 5-16-15, 2310 ft N and 330 ft E of SWc; Lecroy 7, 16-16-15, 1120 ft S and 150 ft E of NWc; H. Murphy 33, 4-16-15, 970 ft N and 1690 ft E of SWc; H. Murphy 34, 4-16-15, 1650 ft N and E of SWc; H. Murphy 35, 5-16-15, 1120 ft N and 200 ft W of SEc; T. C. Murphy 19, 9-16-15, 175 ft N and 275 ft W of SEc NE¼; Werner 39, 6-16-16, 200 ft N and 1120 ft E of SWc of Section. Hickman et al's Graves 1, 3-16-15, NEc NW¼ SE¼. Hollifield et al's Giller 11, 10-16-15, NWc NE¼ SE¼; Giller 12, 10-16-15, SWc NE¼ SE¼. Humble O. & R. Co.'s Lawton A-3, 7-16-15, SWc N½ NW¼ SW¼. E. M. Jones' Cook 2, 16-16-15, 200 ft N and W of SEc NE¼ NE¼. Keen & Woolf's Bradford 1, 7-16-15, 200 ft N and W of SEc NW¼ NW¼. Lion O. & R. Co.'s Graves 6, 3-16-15, center of south line SE¼ SW¼, old well to be deepened; LeCroy 1, 16-16-15, center N line E½ SW¼ NW¼, old well to be deepened. Lyall et al's Fee 4, 3-16-15, center S½ SE¼ NW¼, old well to be deepened. Mazda Oil Corp.'s Lawton R-4, 10-16-15, 140 ft to N and 200 ft W of SEc NE¼ SW¼. Natural Gas & Fuel Corp.'s Ballard 2, 15-16-15, SWc NE¼ NE¼ NW¼; Ballard 4, 15-16-15, center of south line NE¼ NE¼ NW¼; Lawton C-2, 10-16-15, NEc NW¼ SW¼ SW¼. Rabage et al's Rice 1, 7-16-16, center of west line S½ NW¼ NW¼. Sun Oil Co.'s Hatfield 3, 6-16-15, 200 ft S and E of NWc SE¼ SE¼.

OKLAHOMA

Kay County—Comar Oil Co.'s No. 5 Harwell, C NW NW NE 21-29-1w. White Eagle O. & R. Co.'s No. 1 Campbell, C SE SW SW 32-29-1w. Amerada Pet. Co.'s No. 1 Via, C E½ SE NE SE 6-28-1w. Wrightsman Oil Co.'s No. 1 Townsite, block 18, lot 10, 8-28-1w. Davis Drilling Co.'s No. 1 Street, C NE NE NE 31-28-3e.

Grant County—Cowden's No. 2 Vellner, NEc SE NE SW 22-25-4w.

Noble County—Hummert et al's No. 1 Merritt, C NW NW SW 22-22-2w. Bu-Vi-Bar Pet. Co.'s No. 1 Snyder, C NW NW SW 28-21-2w. Magnolia Pet. Co.'s No. 1 Austin, C SW SW SE 14-21-1w.

Garfield County—Marland Oil Co.'s No. 1 Garbo, C NW NW SE 19-23-3w. Hooper et al's No. 1 Seaman, SEc SW 1-22-4w. Roxana Pet. Co.'s No. 2 Wolf, C NE NE NW 13-22-4w (owd). Chas. Knox's, No. 3 Crooks, NEc 26-22-4w.

Logan County—J. L. Donahue et al's No. 1 J. J. Donahue, NWc SE 21-18-2w.

Pawnee County—J. H. Markham's No. 1 Forbray, NEc SW 29-21-7. Dempsey et al's No. 3 Lesher, SEc NW NE 21-20-6. Selby O. & G. Co. and Gypsy Oil Co.'s No. 20 Mullendore, NEc SW NW 1-20-7. Mid-Continent Pet. Co.'s No. 13 Schooland, NWc 16-20-7.

Lincoln County—Twin State Oil Co.'s No. 4 Bigwater, SEc NW NW 2-14-5. Magnolia Pet. Co.'s No. 6 A. Sukovaty, NEc SW NW 2-14-5; No. 2 A. Sproleder, NEc NW NE 3-14-5.

Seminole County — Southwestern Pet. Co.'s No. 1 Harjo, C SW NW SE 28-11-8. Carter & Pulaski's No. 3 Williams, C NW SW NW

33-11-8; No. 6 Baker, C NW SE NW 33-11-8. Magnolia Pet. Co.'s No. 1 Hanning, C NE NW NW 23-8-7.

Hughes County—J. W. McCullough et al's No. 1 Johnson, C NE NW NE 25-9-8. Transcontinental Oil Co.'s No. 1 Smith, SWc NW NE 17-9-9. Tidal-Osage Oil Co.'s No. 1 Harjo, C SW NW NW 3-9-11. Dixie Oil Co.'s No. 2 Irving, C SW NE SE 18-8-10; No. 2 Diamond, C SE NE 18-8-10.

Jefferson County—Cosden & Co.'s No. 1 Reid, NEc 29-6s-4w. Humble-Hambro's No. 4 Seay, C N L NE SE 33-6s-5w.

Caddo County—Magnolia Pet. Co.'s No. 6 Surbrick, SWc SE SE 3-5n-9w.

Grady County—Stagner et al's No. 2 Edmondson, NWc SW NW 23-5n-3w. Briscoe & Hall's No. 1 Farwell, NWc NW NW 25-5n-2w. Magnolia Pet. Co.'s No. 3 Smith, C NW NE 35-5n-8w. Briscoe & Hall's No. 2 Reed, NEc NW NW 25-5n-8w; No. 2 Derbye, C E L SW SW 2-4n-8w. Carter Oil Co.'s No. 2 Lindsey, SWc SE SW 35-3n-5w (owd).

Stephens County— Green & Lesh's No. 1 Garza, NEc NW SE 2-2n-5w.

Okmulgee County—Papoose Oil Co.'s No. 20 Osborn, SEc NW SW 21-15-14; No. 21 Osborn, C N L SE SW 21-15-14. Hastings' No. 4 Osborn, SWc SE NW 21-15-14. Sheridan Oil Co.'s No. 1-A Peters, SEc 33-16-11. Shaffer Oil & Ref. Co.'s No. 6 Gibson, SWc NW SE 17-15-11. Phillips Pet. Co.'s No. 2 Rowe, C W L NW NE 1-15-12. Olean Pet. Co.'s No. 6 Hagen, SEc SW NW 14-15-12. Eagle Pitcher Oil Co.'s No. 1 Barnett, C S L NW SW 33-13-12. Waite Phillips' No. 1 Strip, SWc NW 33-13-12 (owd). Continental Oil Co.'s No. 1 Kanara, SWc NE 6-11-13. E. P. Jones' No. 3 Warden, SWc NE 6-11-13. Gypsy Oil Co.'s No. 4 J. Andy, C W L NW NE NE 28-14-14. Wineland Oil Co.'s No. 10 Anderson, SEc SW SE SE 8-14-15. Laurel Oil & Gas Co.'s No. 1 Lewis, NWc SE SE 20-15-14 (owd). J. A. Swindler's No. 8 C. Lewis, SEc NE SE 20-15-14, twin.

Okfuskee County—Josey Oil Co.'s No. 4 Fields, C S L NW NW 33-12-11. Burk-Gries et al's No. 1 Snyder, SEc 27-11-10. Atlantic Oil Producing Co.'s No. 2 Johnson, C NW NW NE 2-10-11 (owd).

Creek County—Wilcox Oil & Gas Co.'s No. 2 Scott, C N L NE SE 20-14-10. Gled Oil Co.'s, No. 1 Rose, NWc NE SW 13-19-8. Wiker et al's No. 1 Tahlodge, NEc 9-18-11, twin. Pure Oil Co.'s No. 2 Wright, NWc SW NW 19-17-9 (owd). Kiycoha Oil Co.'s No. 6 Self, NEc SW SW 36-17-9. Young et al's No. 1 Self, NWc SW NE 36-17-9. Ireland Oil Co.'s No. 3 Freeman, C S L SW SE 8-17-11. McClung et al's No. 1 Barnett, SWc SE NE 28-17-11. Emery & Sons' No. 6 Jacobs, NEc SW NE 21-16-9. Nowata Oil & Ref. Co.'s No. 1 Amtuc, SWc SE SE 5-16-12. Phillips Pet. Co.'s No. 4 Bradbury, NWc SE NW 24-14-9. H. George et al's No. 1 Webb, SWc NE NW 11-14-10.

Tulsa County—Sand Springs Home's No. 1 Combs, NWc 23-19-11. Shaffer Oil & Ref. Co.'s No. 4 Bruner, NEc SE 6-19-12. Black et al's No. 13 Rentie, NEc NW NW 16-19-13. Hutchinson Oil & Gas Co.'s No. 1-A Perkins, twin, 16-18-13.

Carter County—Humble O. & R. Co.'s No. 5 Carpenter, C SW NW NE 22-2s-3w. Magnolia Pet. Co.'s No. 7 C. Smith, C NW SW 24-2s-3w. Amerada Pet. Corp.'s No. 11 Fish, SEc NW NE 28-5s-1e; No. 4 Baptiste, SEc NE NE SW 28-5s-1e; No. 3 Wolverton, NEc SW SW, NE 34-5s-1e.

Osage County—Amerada Pet. Corp.'s No. 1, C E L NW 6-20-12. Tidal Osage Oil Co.'s No. 21, SW SE SW SW 27-22-10; No. 9, NE SW NE NW 25-24-8. Sinclair O. & G. Co.'s No. 22, C NW SE SW 32-22-10. Foster & Norwood's No. 4, NE SE NE SW 23-24-9. Continental Oil Co.'s No. 5, C SE SW SE SW 28-24-9. Lewis Oil Co.'s No. 9, SW NE 21-26-6. Carter Oil Co.'s No. 13, SW SE NW 21-26-6; No. 15, C SE SW NW 21-26-6. Morton et al's No. 1, NWc 1-26-7. Davis Drlg. Co.'s No. 1, NEc 31-28-4. Terminal Pet. Co.'s No. 1, NE NW 36-28-4. King Drilling Co.'s No. 1, SW SE 22-29-4. Winona Oil Co.'s No. 1, NE NW 29-29-9. Wiser Oil Co.'s No. 11, NW NE NW NW 27-29-11. Gillespie et al's No. 27, SW NW SE NE 8-20-12.

KANSAS

Butler County—Connell et al's No. 1 Liggett, NWc 30-25-7. Tom Miller's No. 1 Drum Bitler, NWc SE NW 29-26-8. Davis et al's No. 1 Drum Bitler, SEc NE 30-26-8. Phillips Pet. Co.'s No. 1 Reynolds, NEc SE NW 16-27-6. Dingee & Phillips Pet. Co.'s No. 1 While, NEc NE SE 14-29-3.

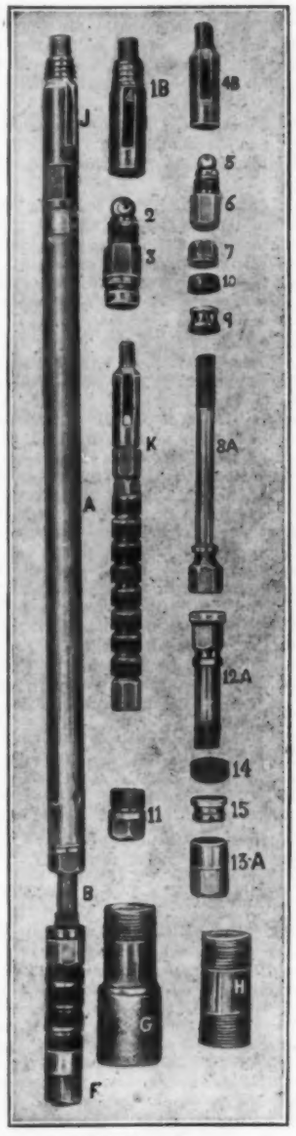
Cowley County—J. A. Hull et al's No. 8 Detmer, NEc NW SW 24-32-4. J. A. Hull's No. 10 Walker, SWc NW SE 24-32-4. Waite Phillips & Marland's No. 2 Turlow, SEc SW SE 17-33-3; No. 8 Nelson, SE NE NE 20-33-3; No. 9 Nelson, NEc 20-33-3; No. 7 Snyder, NEc NW SW 21-33-3; No. 8 Snyder, SEc NW SW 21-33-3; No. 2-W Snyder, NWc SE SW 21-33-3; No. 3-W Snyder, SEc SW 21-33-3; No. 1 Allison, NEc NW NE 28-33-3; No. 2 Allison, C S L NW NE 28-33-3; No. 5 Caldwell, SEc NW NW 28-33-3; No. 6 Caldwell, SWc NE NW 28-33-3; No. 7 Caldwell, SE NE NW 28-33-3; No. 8 Caldwell, NEc NW 28-33-3.

Greenwood County—Phillips Pet. Co.'s No. 3 Warrenburg, SEc SW SW 12-22-10; No. 4 Warrenburg, NWc SE SW 12-22-10. Empire G. & F. Co. No. 2 Green, SWc NW SW 12-22-10. R. G. Gillespie's No. 2 Miller, NEc SW SW 2-23-9. J. B. Murphy's No. 7 Green, NWc SW 2-23-9. Greenland Oil Co.'s No. 13 Green, SWc SE SE 10-23-9. Roth & Mission Oil Co.'s No. 3 Tucker, SEc SE SE 22-23-10. Mid-Kansas O. & G. Co.'s No. 24 Allen, SEc NW SE 23-23-10; No. 31 Martindale, SEc NE SE 31-23-10; No. 32 Martindale, NEc NE 31-23-10. Roth & Mission Oil Co.'s No. 9 Cartwright, NWc SW NE 1-24-9. Arkansas Fuel Oil Co.'s No. 12 Marshall, NEc SE NW 1-24-9. Peerless Oil Co.'s No. 1 Wagner, SWc SE 31-24-11. Roth & Faurot's No. 6 Burkett, C E L SW NW 12-25-8. Mid-Kansas O. & G. Co.'s No. 7 Dilbut, NW NE NW 3-25-9; No. 4 Ladd, NEc NW NW 20-25-9. Flint Ridge Pet. Co.'s No. 1 Mills, NEc SE NE 23-26-9.

Lyon County—Meller Hawks & Crawford's No. 1 Johnson, SEc NE SE 33-19-10.

Marion County—National Refining Co.'s No. 2 Waner, SWc SE NE 17-21-4.

Texas Style



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1700 Neco Pumps

Eight cup plunger and long open cages permit handling maximum amount of fluid.

Made for any size tubing.

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Manufactured by

NORTHRUP EQUIPMENT CO.

PARKERSBURG, W. VA.

CALIFORNIA

Elk Hills Field—Standard Oil Co.'s Kern Co. Lease 1-24, 31-30-25; Tupman 44, 36-30-24.

Fresno County Field—Associated Oil Co.'s 1, 15-16-19.

Inglewood Field—Standard Oil Co.'s Vickers 1, 15, 8-2-14; 1, 13, 8-2-14. Associated Oil Co.'s Vickers 32, 7-2-14. Shell Co.'s Rindge 12, 8-2-14. Petroleum Midway Co. Ltd.'s Moyneir 7, 8-2-14. Brown Shasta Oil Co.'s 7, 7-2-14; 2, 8-2-14. Standard Oil Co.'s L. A. Investment 1, 23, 17-2-14.

Kern River Field—J. C. Theriot's 1, 23-29-27.

Long Beach Field—Fred A. Walker's 1, 24-4-13. J. E. O'Donnell's O'Donnell 43, 24-4-13. South Slope Oil Co.'s O'Donnell 42, 13-4-13. N. Braly & N. T. Slade's Engilke 1, 24-4-13.

McKittrick Field—Cyril C. Lovitt's 1, 10-30-21. Smith & McRae's 1, 4-30-22.

Midway Field—Formac Oil Co.'s 21, 36-32-23. E. & M. Oil Co.'s 15, 10-31-22. Elbe Oil Land Dev. Co.'s Sue Greenleaf 1, 6-31-23. Gilmore Oil Co.'s 3, 27-31-22. Bell-Evans Oil Co. Inc.'s 9, 35-32-23; 10, 35-32-23. Federal Drilling Co.'s 11, 20-31-24.

Rosecrans Field—Elbe Oil Land Dev. Co.'s 5, 20-3-13.

San Mateo County Field—Rollo Ellis' 1, 21-7-4.

South Mountain Field—Ping Pet. Corp.'s 1, 22-3-21. Santa Paula Oil Co.'s Santa Paula 17, 18-3-20.

Sunset Field—Standard Oil Co.'s Monarch 44, 2-11-24.

Torrance Field—Standard Oil Co.'s Marble Lease 2, 4, 22-4-14. C. C. M. O. Co.'s Del Amo 69, 9-4-14; Del Amo 81, 8-4-14.

Ventura Field—Shell Co.'s Gosnell 16, 28-3-23.

LOUISIANA

Caddo Parish—Dixie Oil Co., Inc.'s Dillon 67, 14-21n-15w, 1710 ft W and 2040 ft N of SE Cor. of Sec. Lewis Oil Corp.'s Caddo Mineral Land 8, 24-22n-15w, 200 ft W and 550 ft S of NE Cor. SE¼ of SW¼. Louisiana Oil Ref. Corp.'s Green 17, 27-20n-16w, 532 ft N and 394 ft W of SE Cor. of Lot No. 3 in NW¼ of Sec. D. C. Richardson, Tr.'s Bickham 2, 32-19n-15w, 1800 ft E and 1600 ft N of SW Cor. of Sec.

Calcasieu Parish—Gulf Refg. Co. of La.'s Vincent 40, 34-10s-12w, 1610 ft E and 837 ft N of SW Cor. of Sec. Edgerly Pet. Co.'s Vincent 5, 34-10s-12w, 25 ft S and 25 ft E of NW Cor. of Lot 103.

Morehouse Parish—R. C. Boisseau et al's Sullivan & Barnes, 11-21n-7e, 376.20 ft W and 318.12 ft N of SE Cor. of Sec.

Ouachita Parish — Natural Gas Production Co. of La.'s Johnson 1, 52-20n-4e, 1990 ft SE and 457 ft NE of SW Cor. of Sec.

Webster Parish—Humble Oil & Ref. Co.'s Weaver Bros. & Looney No. 3, 25-21n-10w, 810 ft S and 1650 ft E of NE Cor. of Sec.

TEXAS

Archer County—McCarty Oil Co.'s, Waggoner Bldg., Wichita Falls, L. F. Wilson 8, E. Hall sur, 300 ft N No. 7; 9, same sur, 300 ft W No. 8. Consolidated Oil Co. of Texas', Wichita Falls, L. F. Wilson 1, B 76, Amer. Trib. sur, 450 ft to N and 1958 ft to E line. L. T. Burns', First Nat. Bank Bldg., Wichita Falls, J. T. Longley 1, J. Levens sur, 150 ft to N and E lines. Fisher & Gilliland's, City Nat. Bank Bldg., Wichita Falls, J. Rogers 7, 2407 TE&L sur, 150 ft to N and W lines. Burns & Maxon's, First Nat. Bank Bldg., Wichita Falls, L. F. Wilson 4, S 75, Amer. Trib. sur, 450 ft to E and 150 ft to S line. Gulf Production Co.'s, Fort Worth, Oil Investment Co. 13, Club Ranch sur, 450 ft to E and 150 ft to S line. Shappell Oil Co.'s, Wichita Falls, J. L. Jackson 23, B 23, D. C. S. L. sur No. 4, 300 ft E No. 22. Wilson Drilling Co.'s, Wichita Falls, L. F. Wilson 1, B 1008, Amer. Trib. sur, 150 ft to N and E lines. C. P. Burton's, City Nat. Bank Bldg., Wichita Falls, C. Plowman 1, B 41, H. Corzine sur, 150 ft to S and W lines. Texhoma Oil & Ref. Co.'s, Wichita Falls, W. H. Taylor 4, Amer. Trib. sur, 300 ft E No. 2. County Line Oil Co.'s, Wichita Falls, Stampfli & Roberts 8-A, 2408 TE&L sur, 150 ft to N and E line; 9-A, same sur, 450 ft to N and 150 ft to E line. Kentucky Oil Corp.'s, Box 331, Wichita Falls, L. F. Wilson 1, B 70, Amer. Trib. sur, 150 ft to N and W lines; 2, same sur, 300 ft S No. 1; 3, same sur, 300 ft S No. 2; L. F. Wilson 2, S 79, Wm. Walker sur, 300 ft E No. 1; T. B. Wilson 2, B. Howard sur, 300 ft S No. 1. Humble Oil & Ref. Co.'s, Wichita Falls, Oil Inv. Co. 4, B 125, Club Ranch sur, 150 ft to N and E lines; B. Wisdom 1, J. Ostane sur, 133 ft to W and 1634 ft to S line. Roy I. Carter's, City Nat. Bank Bldg., Wichita Falls, J. R. Parkey 2, S 11, H&TC Ry sur, 300 ft W No. 1; 3, same sur, 340 ft W No. 2. Barkley & Meadows', Wichita Falls, L. F. Wilson 8, B 88, Amer. Trib. sur, 360 ft S No. 7.

Atascosa County—Rio Bravo Oil Co.'s, S. P. Bldg., Houston, S. Brown 1-B, 1500 ft SW No. 2; Cortinas 2-C, 159 ft E No. 1.

Anderson County—L. Jordan's 1, J. Allbright sur, 1-3, 300 ft to N and E lines, drilled by M. A. Davey, Palestine, Texas.

Brown County—C. O. Moore & Florence Oil Co.'s, Cross Plains, H. Baxter 2, Wm. Miller sur, 150 ft to S and 450 ft to W line. Rhodes & Highers', Breckenridge, W. A. Prater 9, W. B. Travis sur, 300 ft NE No. 4. R. J. Baker Jr.'s, Zephyr, E. J. Bynum 2, No. 134 sur, 1600 ft to N and 2000 ft to W line. Stout & Lamb's, Brownwood, M. R. Coggin 1, No. 138 Jas Winn sur, 300 ft to S and 500 ft to E line. Canyon Oil & Gas Co. Inc's, Cross Plains, J. W. Ellsberry 4, J. L. Williams sur, 650 ft SE No. 3. Gilman & Conway Bros.', Box 41, Cross Plains, J. W. Newton 8, Wm. Miller sur, 155 ft to N and W lines; 9, same sur, 325 ft E No. 6. F. W. Stone's, Cross Plains, J. Byrd 1, W. B. Travis sur, 937 ft to W and 150 ft to S line. R. F. Gilman et al's, Box 117, Cisco, R. Thompson 1, W. R. Smith sur, 755 ft to W and 155 ft to S line.

Bexar County — I. L. Dingman's, 611 Fifth St., San Antonio, G. W. Hagy 2, No. 6 F. R. Hernandez sur, 150 ft to N and 981 ft to E line.

Baylor County—Shaw & Rathke's Wichita Falls, W. B. Mills 2, 2428 TE&L sur, 150 ft to S and 527 ft to W line; 3, same sur, 650 ft to S and 827 ft to W line; 4, same sur, 150 ft to S and 1127 ft to W line; 5, same sur, 150 ft to S and 450 ft to E line; 6, same sur, 150 ft to S and E lines.

Callahan County—Stalker & Kors', 512 West 18th St., Cisco, R. A. Park 2, 3194 TE&L sur, 1225 ft to E and 150 ft to S line. Canyon Oil & Gas Co.'s, Cross Plains, M. Kennedy 4, Bayland Asy sur, 300 ft N No. 3. W. W. Webb's, Baird, Z. E. Marvin 1, S 70, Bayland Asy sur, NW cor. Quaker Oil Co.'s, City Nat. Bank Bldg., Wichita Falls, J. T. Gilliland 1, S 147, BBB&C Ry sur, 150 ft to N and W lines. Goodloe & Harris', Putnam, S. M. Davis 21, S 4, Bayland Asy sur, west of No. 20. Texas Co.'s, Breckenridge, T. Weddington 8.2, S 4, Bayland Asy sur, 50 ft E No. 8. W. J. House's, Moran, A. H. Wagley 1, 2039 TE&L sur, 150 ft to N and W lines; 6, 2996 TE&L sur, 300 ft NE No. 2. Powell & Oates', Moran, J. Cottle 1, 2993 TE&L sur, 150 ft to N and 750 ft to W line. Sargent, Rogers & Reckard's, Cisco, A. Pippin 1, 3160 TE&L sur, 1050 ft to N and W lines. W. I. Stock's, Cisco, J. L. Woods 15, 2276 TE&L sur, 150 ft to N and W lines. Electra-Callahan Oil Co.'s, Electra, J. H. Ogle 10, 2974 TE&L sur, 450 ft to N and W lines. Deason Oil Co.'s, 710 West 13th St., Cisco, J. M. Threets 3, S 13, Bayland Asy sur, 250 ft to E and 750 ft to S line. Shackleford Oil Co.'s, Putnam, J. A. Shackleford 19-A, 2270 TE&L sur, 1500 ft to E and 1000 ft to S line. Parkersburg Drilling Co.'s, Box 19, Cisco, L. H. Qualls 27, 2279 TE&L sur, 400 ft W No. 21.

Caldwell County—Sun Oil Co.'s, Dallas, F. H. Stacey 1, Tyson & Armendaris sur, 817 ft to N and 1995 ft to W line. E. Constantin Jr.'s, Wichita Falls, A. T. Cardwell 3, Castillo sur, 300 ft E No, 2. Texas Co.'s, Houston, C. H. Beaty 4, J .Burleson sur, 936 ft SW No. 1; 5, same sur, 312 ft SW No. 4; 6, same sur, 312 ft SW No. 5. Witherspoon Oil Co.'s, San Antonio, M. L. Brewer 11, J. Burleson sur, 50 ft NE No. 8. Gufl Production Co.'s, Houston, M. L. Brewer 16, J. Burleson sur, 300 ft NE No. 10. Mills Bennett's, Second Nat. Bank Bldg., Houston, Mrs. F. A. Cardwell 3, J. Burleson sur, 300 ft SW No. 1; 4, same sur, 300 ft NE No. 2.

Coleman County—Forster & Cox's, Burkett, R. Masterson 1, No. 165 A. Wickson sur, center. Marian Harvey & Co.'s, Box 145, Cross Plains, R. F. Watson 1, Blk. 10, 160 ft to S and E lines. A. M. Josey's, Sylvester, J. C. Watson 1, No. 163, Wm. Mason sur, SE cor. Canyon Oil & Gas Co.'s, Inc., Cross Plains, W. T. Burns 8, Wm. Mason sur, 375 ft W No. 7.

Clay County—Lone Star Gas Co.'s, Dallas, N. H. Martin 25, B 59, B. C. S. L. sur, 335 ft to N and 1400 ft to E line. L. M. Emlett's, St. Louis, Mo., Panhandle 11, B 47, P. C. S. L. sur, 750 ft to E and 450 ft to S line.

Eastland County—Halmack Oil Co.'s, Amer. Exchange Nat. Bank Bldg., Dallas, M. E. Gilbert 1, S 19, H&TC Ry sur, 200 ft to N and 660 ft to W line. Geo. S. Henry's, Box 1353, Breckenridge, O. T. Maxwell 1, S 5, BBB&C Ry sur, 450 ft to N and 600 ft to E line. Holliday & Daniels', Daniels Hotel, Cisco, M. F. Raney 1, S 52, H&TC Ry sur, 750 ft to N and W lines. Corzelius Bros. & Taggart's, Eastland, H. Brashear 2, E. Finley sur, 1750 ft to N and 2000 ft to W line.

Fort Bend County—Marland Oil Co.'s, Cotton Exchange Bldg., Houston, Moore 1, A. Balle sur, NE cor. Rycade Oil Corp.'s, Humble Bldg., Houston, W. R. Nash 4, Thos. Allsberry sur, 50 ft to N and 100 ft to W line. Union Sulphur Co.'s, Humble Bldg., Houston, T. W. Davis 30, M. Young sur; 31, same sur.

Gaines County—J. J. Mundy's, Box 368, Midland, M. C. Lindsey 1, No. 17 sur, center.

Harris County—J. J. Parker's, Humble. Landslide 1, Jas. Strange sur, 18 ft to E and 133 ft to S line. Southern Pet. Co.'s, State Nat. Bank Bldg., Houston, Landslide 45, R. Dunman sur, 100 ft NE No. 18. Texas Co.'s, Houston, Warren 4, E. Ehrenberg sur, 300 ft to W and 2000 ft to S line.

Jefferson County—Gulf Production Co.'s, Houston, E. Thomas 2, D. H. Smith sur, 2278 ft to W and 1000 ft to S line. Paggi Bros. Oil Co.'s, Beaumont, Gladys City 2, B 19, Gladys City sur, 25 ft to N and 45 ft to E line.

Jasper County—Chas. E. V. Lenz's, Jasper, McShane Est. 1, W. B. Green Lge., 1180 ft to E and 1060 ft to S line.

King County—Hoffer Oil Corp.'s, Ft. Worth, F. Patton 1, S 44, R. M. Thompson sur, 440 Vs to W and 2500 Vs to S.

Kleberg County—Humble Oil & Ref. Co.'s, Houston, Dennett Bros. 1, S 39, R. de Grullo sur, 150 ft to S and 1812 ft to W line.

Liberty County—Gulf Prod. Co.'s, Houston, Phoenix 35, J. Devore sur, 1800 ft to S and 1666 ft to W line. Higgins Oil & Fuel Co.'s, Houston, Merchant 7, J. Devore sur, 300 ft N No. 5. Liberty Production Co.'s, Liberty, C. F. Seaberg 1, No. 74, T&NO Ry sur, 466 ft to N and W lines.

Milam County—W. W. Bynum's, Minerva, Mrs. L. Walker 1, T. J. Chambers sur, 150 ft to S and W lines. J. C. Davis', Rte. 4, Rockdale, Fee 1, J. J. Acosta sur, 300 ft to W in center of line. Clear Lake Oil Co.'s, Rockdale, H. T. Coulter 2, Arnett sur, 150 ft to N and 300 ft to E line. Simms Oil Co's, Dallas, B. F. Stidham 1, J. P. Jones sur, 600 ft to S and W lines.

Midland County—Standard Potash Co. Inc.'s, Thomas Bldg., Midland, O. P. Jones 1, S 9, B 41, T&P Ry sur, 150 ft to N and 330 ft to W B 41. J. B. Zimmerman et al's, 1818 California Ave., Ft. Wayne, Ind., Midkiff & Hill 1, S 8, T&P Ry sur, center.

Marion County—Tholl Oil Co.'s, San Jacinto Life Bldg., Beaumont, Lawton & Odell 1, M. G. Nall sur, north central.

Mitchell County — Thompson & Morrison's, Colorado, G. W. Womack 1, S 3, T&P Ry sur, 330 ft to S and E lines.

Maverick County—Rycade Oil Corp.'s, Humble Bldg., Houston, J. M. Chittim 1, S 116, B 7, I&GN Ry sur, 100 ft to S and W lines. Cox, Phelps & Wilson 1, B 7, S 169, I&GN Ry sur, 100 ft to E and 2640 ft to S line.

Navarro County—Oxford Oil Co.'s, Keystone Bldg., Houston, T. Phillips 1, M. Boren sur, 421 ft to N and 150 ft to E line. Skelly Oil Co.'s, Tulsa, Okla., J. R. Gentry 3, Jno. Taylor sur, SE No. 2. Skelly Oil Co.'s, Tulsa, Okla., J. R. Gentry 3, Jno. Taylor sur, SE No. 2.

Sun Oil Co.'s, Amer. Exchange Nat. Bank Bldg., Dallas, A. Hillburn 1, Wm. Hudson sur; 2, same sur; A. Hillburn 2, M. Boren sur; 3, same sur. Roxana Pet. Corp.'s, First Nat. Bank Bldg., Houston, W. Smith 7, Jno. Havens sur, 150 ft to N and E lines.

Palo Pinto County—Moore, Snebold & Erwin's, Dan Waggoner Bldg., Ft. Worth, L. C. Slemmons 1, S 44, T&P Ry sur, 330 ft to E and 990 ft to S line.

Shackleford County—Shackleford & Griffith's, Box 26, Sedwick, W. E. Autrey 1, S 21, Blind Asy sur, 1075 ft to N and 450 ft to W line. Mrs. L. E. Miller's, Box 1156, Breckenridge, M. Kane D-2, 2272 TE&L sur, 150 ft to N and 783 ft to E line. Fulcher Blackwell's, Ranger, Diller 2, S 43, Univ. Lands sur, 640 ft to N and E lines. L. B. Tannehill's, Albany, C. B. Snyder 1, S 65, T&P Ry sur, 1160 ft to N and 200 ft to E line. R. O. LaNeve's, Mineral Wells, J. T. Cockrell 5, S 15, L. A. L. sur, 150 ft to E and 450 ft to S line. Parkersburg Drilling Co.'s, Box 19, Cisco, S. S. Diller 1, S 49, L. A. L. sur, 150 ft to N and W lines.

Stephens County—Texas Co.'s, Breckenridge, W. H. Vick 3, 3377 TE&L sur, 330 ft to W and 1000 ft to S line. B. F. Kleinfelder's, Box 1132, Breckenridge, W. J. Conner 3, S 24, L. A. L. sur, 1900 ft to N and 354 ft to E line. N. A. Moore's, Box 341, Eastland, W. W. Cunningham 1, 1210 TE&L sur, 300 ft to S and W lines. Walker, Kelly et al's, Ranger, J. T. Fletcher 1, S 28, T&P Ry sur, 400 ft to N and W lines.

Sterling County—C. J. Wrightsman Petroleum Co.'s, Tulsa, Okla., G. R. Hull 1, S 6, B 2, GC&SF Ry sur, 180 ft to W and 1840 ft to S line.

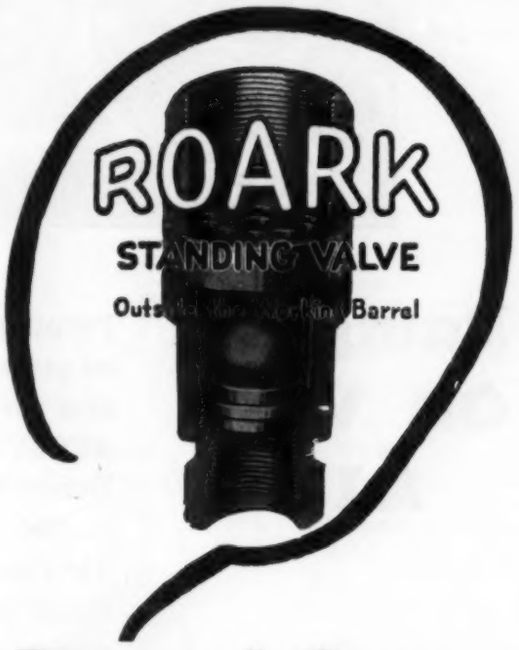
Val Verde County—A. Blume's, Del Rio, G. B. Moore 1, No. 184 I&GN Ry No. 4 sur, south central.

Wichita County — Ferguson, Hawkins & Hester's, Wichita Falls, J. A. Watkins 10, B 46, W. V. F. L. sur, 100 ft S No. 4. J. J. Moran's, Wichita Falls, W. T. Waggoner 3, A. Gibson sur, 300 ft SE No. 2. Ryan Petroleum Co.'s, Bartlesville, Okla., Geo. Nance 36, S. O. Fowler sur, 300 ft SE No. 35. W. A. Patterson's, F. & M. Bank Bldg., Ft. Worth, J. A. Fisher 3, S 15, H&GN Ry sur, 300 ft S No. 2. J. W. Hooser's, Dallas, Mitchell A-5, Castleman & C. T. Ry sur, 300 ft S No. 6; A-6, same sur, NW cor; A-7, same sur, 300 ft E No. 6; Mitchell B-2, same sur, 300 ft E No. 1; B-3, same sur, 300 ft E No. 2; B-4, same sur, 300 ft E No. 3. Magnolia Pet. Co.'s, Dallas, S. Ramming 9, HT&B Ry sur, 1000 ft to S and W lines; S. Reilly 118, J. E. Ellis sur, 150 ft NE No. 17. Petroleum Prod. Co.'s, City Nat. Bank Bldg., Wichita Falls, Kemp & Allen 7, S 4, W. V. F. L. sur, 300 ft S No. 5; 8, same sur, 300 ft S No. 6. W. L. Mann's, 710½ Ohio St., Wichita Falls, Roller Est. 8, J. Mumpford sur, 300 ft N No. 7. Cram & Clark's, City Nat. Bank Bldg., Wichita Falls, J. A. Fisher 9, S 15, H&GN Ry sur, 750 ft to W and 550 ft to S lines. Roy I. Carter's, City Nat. Bank Bldg., Wichita Falls, Kemp & Kempner 6, B 53, J. M. Tigert sur, 410 ft E No. 3. Gulf Production Co.'s, Fort Worth, J. D. Melton 7, GC&SF Ry sur No. 2, 185 ft to W and 1343 ft to S line. Maer & Staniforth's, City Nat. Bank Bldg., Wichita Falls, T. W. Roberts 1, S 10, A. R. Collins sur. Humble Oil & Ref. Co.'s, Wichita Falls, L. P. Douglas 19, S 11, HT&B Ry sur, 485 ft W No. 18. Williams, Conrey & McConnell's, Wichita Falls, E. Horton 4, BBB&C Ry sur, 300 ft N No. 1. Apple-Brandeberry Oil Co.'s, Wichita Falls, Mrs. Jennings 4, S 12, HT&B Ry sur, 300 ft S No. 1. Texas-Fidelity Oil Corp.'s, 1314 9th St., Wichita Falls, R. M. Peeler 11, H. B. Balch sur, NW cor; 12, same sur, NE cor. Dale et al's, Electra, T. L. Burnett 7, S 9, HT&B Ry sur, 300 ft E No. 6. A. T. Wolfe's, Staley Bldg., Wichita Falls, J. A. Kemp 3, B 55, S. P. Ry sur, 150 ft to N and E lines. P. J. White et al's, City Nat. Bank Bldg., Wichita Falls, T. F. Mitchell 1, P. Castleman sur, 150 ft to N and W lines; S. H. McCarty 2, W. R. Eaves sur, 300 ft E No. 1. Grayce Oil Co.'s, City Nat. Bank Bldg., Wichita Falls, M. A. Eads 7, Day Land & Cattle Co. sur, south of No. 6. W. H. Hammon et al's, City Nat. Bank Bldg., Wichita Falls, J. F. Miller 1, W. R. Eaves sur, 150 ft to N and 300 ft to E line. Corbett, White & Anderson's, Staley Bldg., Wichita Falls, E. E. Goetze 1, S 2, GC&SF Ry sur, 1180 ft to W and 150 ft to N line. Fisher & Jennings', Staley Bldg., Wichita Falls, S. B. Burnett 1, S 9, HT&B Ry sur, 175 ft to N and W lines. Bonchil Co.'s, Staley Bldg., Wichita Falls, Beach 24, C. T. Ry sur, No. 4, 150 ft to S and W lines.

Wilbarger County—Barkley & Meadow's, Wichita Falls, Bond & Hawkins 1, S 100, H&TC Ry sur, 150 ft to S and E lines. Oklahoma-Texas Ref. Co.'s, Box 193, Electra, J. Bowers 2, S 100, H&TC Ry sur, 600 ft to N and 150 ft to E line. Staley & Wynne's, Staley Bldg., Wichita Falls, Bond 13, S 100, H&TC Ry sur, 150 ft to S and W lines. Barbara Powers', 2411 Cumberland Ave., Vernon, P. Servatius 1, S 78, H&TC Ry sur, 1004 ft to E and 317 ft to S line. Landreth Production Co.'s, Breckenridge, W. T. Waggoner 2, S 52, H&TC Ry sur, 1170 ft to N and 150 ft to W same sur, 300 ft W No. 1. Magnolia Petroleum Co.'s, Dallas, W. T. Waggoner 1, S 11, H&TC Ry sur, 150 ft to N and E lines; 3, line.

Webb County—Crown Central Pet. Corp.'s, Mirando City, Wheatley 20, No. 552 sur, NW cor; 21 same sur, SE No. 20; 22, same sur, east of No. 21; 23, same sur, east of No. 22.

Young County—Ray, Featherston Oil Co.'s, Staley Bldg., Wichita Falls, G. W. Vernon 1, J. Poitevent sur, 150 ft to S and W lines. Hamilton & Wilson's, Waggoner Bldg., Wichita Falls, H. Haygood 5, 237 TE&L sur, 300 ft S No. 3; 6, same sur, 300 ft S No. 4. Gulf Production Co.'s, Ft. Worth, F. G. Swain 2, 161 TE&L sur, 300 ft S No. 1. Tulhoma Oil Co.'s, Graham, A. M. Graham 1, E. Keller sur. Panhandle Ref. Co.'s Wichita Falls, J. H. Crain 1, 169 TE&L sur, 150 ft to N and E lines. Humble Oil & Ref. Co.'s, Wichita Falls, I. E. Mercer 4, S 1, J. Poitevent sur, 300 ft E No. 3. Wright & Owens', 616 8th St., Wichita Falls, M. H. Hawkins 1, 200 TE&L sur, 150 ft to N and W lines. L. T. Burns', First Nat. Bank Bldg., Wichita Falls, J. F. Smith 1, S 71, TE&L sur. Simms Oil Co.'s, Magnolia Bldg., Dallas, J. D. Carpenter 9, 237 TE&L sur, 150 ft to N and 550 ft to E line.



A Proved Success

— and deservedly so

The new-principle Roark Standing Valve has come to stay. Dozens of producers, after giving it a thorough trial, are now enjoying its advantages regularly. Dozens of others are investigating its important advantages every week.

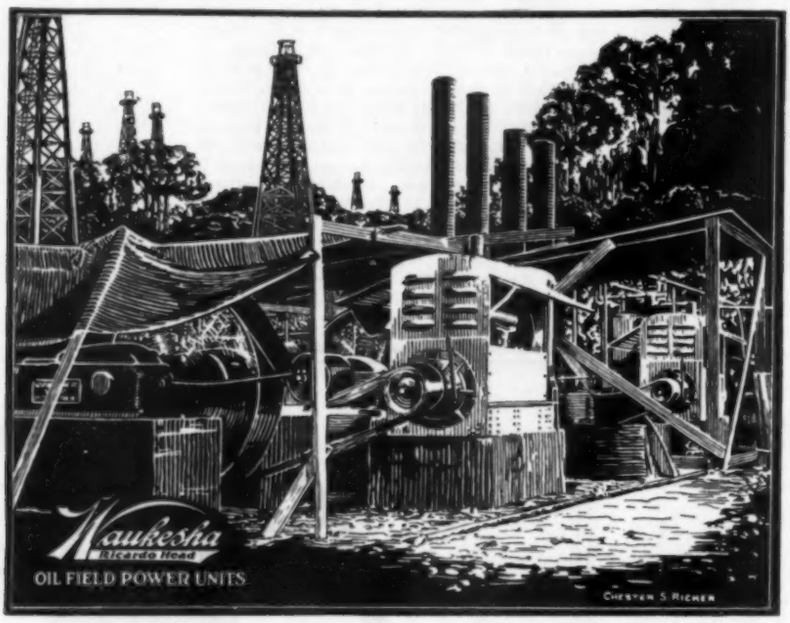
The Roark eliminates cups and leather rings. Its ball and seat—larger than the ball and seat of the traveling valve—has such large fluid passages that cut oil and B. S. are materially reduced. The heavy perforated plate protects the ROARK against injuries from above. Seat frame is easily and cheaply renewable. Valve body is indestructible.

If you have not tried the ROARK yet, you are failing to investigate a real opportunity to increase production of pipe line oil and decrease its cost. If your supply store can't supply you, write us direct.

TEXAS OIL PUMP CO.

Waco, Texas

Two Waukesha-driven Air Compressors in Liberty Field



Pumping Oil With AIR

Peculiar conditions suddenly necessitated pumping oil with air. Reliable power and air units were required IMMEDIATELY. 100 H. P. Waukesha "Ricardo Head" Oil Field Power Units and 310 cu. ft. 750 pounds pressure Ingersoll-Rand Air Compressors were rushed out. The result was--quick installation, with low power cost, conveniently portable fuel and recognized long service life.

Waukesha Oil Field Power Units are sold in the field by practical oil men. Write direct to them or to us for your copy of the Oil Field Bulletin.

WAUKESHA MOTOR COMPANY

Waukesha, Wisconsin

New York City	Hartford	Kansas City	Denver	Tulsa	Houston
Aeolian Building	*K. B. Noble Co.*	*V. L. Phillips Co.*	*Western Equip. Co.*	*C. F. Camp Co.*	*Portable Rotary Rig Co.*

Exclusive Builders of Heavy Duty Gasoline Engines for Nearly Twenty Years

Say you saw it in The Oil Weekly

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS

Allen & Courtney Core Barrel Has Great Speed

A core barrel said to be remarkable for the speed with which it will cut a core is being marketed by Allen & Courtney Oil Tool Company, Compton, California.

This barrel is provided with four blades, the two upper ones reaming the hole and the two lower ones doing the cutting. It is claimed that by splitting

up the operation in this manner, reduced friction and increased cutting speed is obtained. Manufacturers of this barrel claim that a core can be taken with this barrel as fast as a fish tail bit will cut, and still keep the hole to proper shape.

A special core catcher in this barrel rotates freely and eliminates the danger of burning the core, and the core slips out without breaking.

More information will be supplied by the company on request.

Norris Brothers Establish Fort Worth Branch Office

Fort Worth, Texas.—To take care of their increasing business in the Mid-Continent field, Norris Brothers, Inc., of Robinson, Ill., have opened a distributing warehouse in Fort Worth, in charge of J. R. Long. A complete line of Nor-Bro oil well pumping equipment will be kept in stock.

Fire Protection System Worked Out for Derricks

A system of protecting derricks from fire has been worked out by the Western Fire Engineers of Los Angeles, and is being installed by several companies on wells at Long Beach and Rosecrans. The new installation consists of a sprinkler system that envelopes the rig with a spray of water which can be released at a moment's notice when there is a fire nearby or when the rig itself catches fire.

The system is very simple in its operation and very easy to install, at a reasonable cost. The system consists of a series of patented sprinkler heads that have been designed especially for derrick protection. The system is meeting with approval of the fire authorities and a number of systems are in service.

A two-inch pipe running up one leg of the derrick to a manifold which is placed over the crown block carries the water supply for the system. From this manifold the water is distributed to the four sides of the derrick by a one-inch pipe to the first set of sprinkler heads, which are placed approximately four feet below the water table, midway between the legs of the derrick and on the outside, so that they do not in any way hamper the operation of the rig. From here the water is carried through a three-quarter-inch pipe to a second set of sprinkler heads, which are placed just beneath the tubing board.

One sprinkler head is placed immediately under the manifold at the top of the derrick, which spreads the water over and around the crown block and water table. This is a total of nine sprinkler heads per derrick. In some fields where the prevailing winds are stronger, and in instances where derricks are placed very close to each other, thereby being more of a fire hazard, a third set of heads is placed on a lower section of the derrick, these heads being supplied with water by a half-inch pipe from the second on the center tier.

Complete information with specifications, prices and methods of installation can be secured by writing Western Fire Engineers, Inc., 223 Higgins Building, Los Angeles, Calif.

Great Strength and Power In Polish Rod Grip

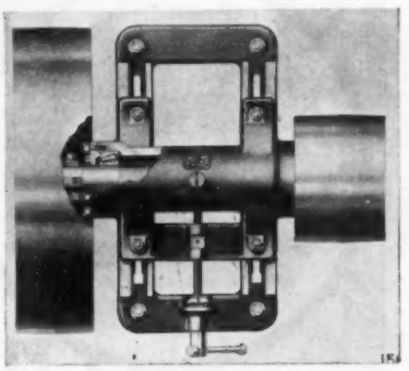
Tremendous strength and gripping power characterizes the D. & B. Simplex Polish Rod Grip, according to its manufacturers, the D. & B. Pump & Supply Company, 301 W. Avenue 26, Los Angeles, Calif.

Powerful leverage action in this grip is secured through the use of the toggle leverage principle.

The appliance is compact in proportion to its strength and gripping power. It is built of high quality steel and operates instantly and positively.

Due to the principle of gripping, it will not mutilate or damage the rods.

Further details will be supplied by the company.



Emsco Countershafts Have Special Oiling Feature

The Emsco roller bearing countershafts for pumping or drilling have been recently placed on the market in California and a number are already in use. Large Timken roller bearings have been used in the countershaft to eliminate troubles formerly experienced with babbitt and bronze bearings. The main bearing housing is of one-piece construction, well braced to withstand heavy strains and the alignment of both bearings is assured. Special attention has been given to lubrication. The housing acts as a reservoir, and the grease is retained in the bearings by means of felt packing stuffing boxes.

An added feature of the countershaft is the improved method of moving the bearing housing for tightening or loosening belts. The adjustment screw travels in a removable nut fitted in a pocket in the main bearing casting. A new nut can be easily inserted if the threads become damaged or worn.

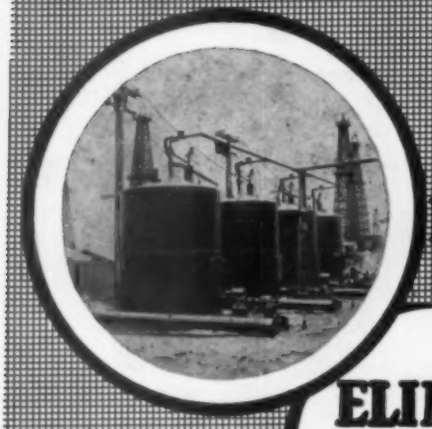
Further information can be secured from Emsco Tool Company, 70th and Alameda, Los Angeles.

Pumping Machinery Bulletin

A bulletin from the Bureau of Mines, Department of the Interior, called "Surface Machinery and Methods for Oil Well Pumping," has recently been released from the government printing office. The bulletin was written by H. C. George, Petroleum Engineer.

Quoting from the introduction, the author says, "This bulletin deals with prime movers, power-transmitting machinery, and the surface equipment and methods used to pump oil wells. It does not discuss geological problems nor the methods and equipment used in drilling or at flowing oil wells. Much of the presentation is by photographs and drawings which are described in the text."

This bulletin is the most complete of any of its kind ever published by the government. It covers every phase of



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ELIMINATE LOSS

Crude testing too high in emulsion content can be economically restored to pipe line requirements by P. R. Electric Dehydrators—and the loss suffered from accepting lower prices for "cut" oil entirely eliminated.

The cost per barrel of treating emulsified crude with P. R. Dehydrators is lower than any other process that recovers all the oil from the emulsion and at the same time restores the crude to its original gravity.

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Our shooters all are experienced, careful and expert men. Their time spent in this service averages more than fifteen years so they had to be right. Remember this when you order that next shot.

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Breckenridge	Gorman	Bartlesville	Drumright	Tonkawa	Eureka
Colorado	Ranger	Cromwell	Okmulgee	Tulsa	Madison
		Cleveland	Stroud	Webb City	

THE EASTERN TORPEDO OF OHIO CO.

pumping oil and gives an illustration and description of practically every device used for pumping. There are 125 pages, all devoted to data covering this subject. Here are a few headings under the subject of power-transmitting machinery: Shackle-line structures and equipment; equipment to take a well off or put it on the power; equipment for supporting shackle lines; equipment to change the length of stroke; equipment to change the direction of shackle line vertically, etc.

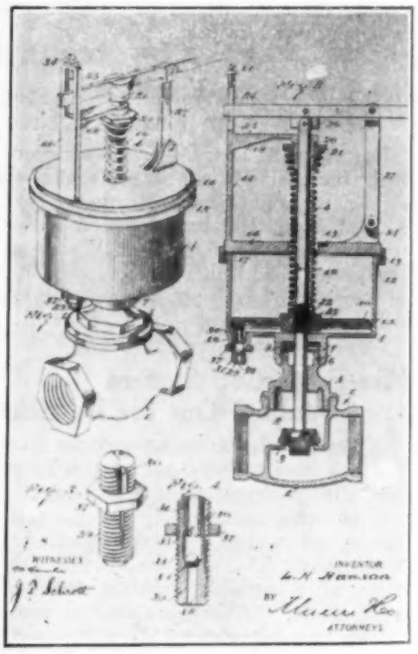
Every chapter in the bulletin is filled with subjects just as important as these mentioned.

Copies of this bulletin may be obtained by writing for No. 224 from the Department of the Interior, Bureau of Mines, Washington, D. C.

Invention to Operate Valves Automatically

An adjustable automatic valve regulator has been patened by Louis H. Hanson, 1611 Sunset Lane, Austin, Texas.

This invention relates to improvements in valve regulators and has for its purpose a device by means of which a valve in a pipe line may be opened quickly. The same device also causes



a quick reseating of the valve. Both the opening and reseating of the valve are done automatically, at various speeds.

Another mechanism of the invention provides for the valves in a pipe line to be opened manually, but closed mechanically.

Mr. Hanson will supply further information on his invention upon application.

LETTERS OF Paul Peebles P.S.G.

Dallis, Texus, June 30, 1925.

Dere Paul Peebles—

I has jus red that Cleo womans meen letter boostin that low down Slim an sayin yu was no count and I think that woman is too dem partikular. Yu cant help bein no count bein from Arkansaw. She hadn't orter expect yu to be enny count an if that low down slim wants to werk while yu is inventin I says let him werk.

Yu dont know me as yu was too drunk when I first seen you in jale at the geeologists convenshun at shreesport, but I liked the way yu cussed that jailer, and if cleo kant appreciate a artistick cusser, I'll be yore trew sweety. Mi old man is in the pen for 40 yeres and I'll be too old and ugly when he gits out to wait for him, and any way he'll be so down in the back from breakin rocks when he gits out he wont be able to git around an show me no good time.

so if yu want a sweety I'm open for yore propersishun. Im not in jail now but if yu come 2 dallis any time to see me call at the city court as I git mi mail there yet.

I'll describe myself. First I'm considered prettie—not tall but stout enuff. Mostly good teeth and usually a smile. I am suffering from a malady the doctors calls hallytossis, but I am goin 2 git me a tooth brush and some soda and see if I can cure it. I think yu will like me and I'm likable and not meen like that Cleo and I'm trew.

Try and come to see me on Aug. 13 as that is my birthday & I am goin to have a big mess of livver for supper.

Hoping to heer from you real soon,

Yore trew

Odor Whiff:

---

mi deer cleopatry

cleo hunny I am goin 2 leev it up 2 yu what kinder of a anser I will rite 2 the letter whitch I enclose, whitch I gess will make yu sorry that yu ritten me sutch a letter as yu did whitch this letter refers 2. yu sea now that I can git me as menny girls as I want whitch admires me for what I am an what I can do, so if yu dont like mi stile well I gess yu no what yu can do if yu think that yu like that Slim persen better than me.

but hunny I am just joking about that. yu no yore ownself that it aint noboddy whitch cood take yore place with me after all of these yeres of us plannin mabe we will git married sumtimes when we git fixed up so that we can git along alrite. I am just sendin this letter on to yu for a joke so that yu can see what kind of mash notes I am all the time gittin from wimmin an girls whitch admires a manly man. I gess hunny that yu do not blame them none.

it is like she sed that I do not remember ever seein her but it is rong when she says that I was drunk & also that I cussed the jailer, because I sertenly wood not be ungentermenly enuff 2 cuss in front of a laddy & not cuss no jailer ennyway while he was around where he cood here me. but she shorely has got a good memry about me bein in shreesport because it has bin a long time sinct that meetin of the geeologists when I made up mi colledge song for the nite school on account all them other geeologists was singin about there schools. that was the time I remember that they did not eleck me pres. of the assosiashun on account of me bein kinder smelly from ridin up there in a cattle trane on account of they had not yet struck oil on mi daddys farm or if they had I did not no nuthin about it. but since then I do not ride on no frates.

I seen in the pappers the other day where jno. d. had a birthday & also where he has sold all of his houses 2 his boy whitch gives me a ideer that mi old man orter do the same thing with me so as when he finly kicks off so me & yu can git married well I will not hav nuthin 2 inherrit so that I will hav 2 pay a hole passel of taxes. it is a pretty good skeem & I gess I will hav 2 go up there & sea the old man about it & explane it all 2 him on account of if I rite he will hav 2 hav mi step maw 2 reed it for him & she will reed it rong & also advise him not 2 do it. so if yu here about me bein up that way yu will no what I went for, & yu need not 2 think that I am goin up there on account of goin 2 dallis on the way. I will mabe hav 2 go 2 dallis on the trip on account of mabe the old man will want me 2 go over there with him 2 see about sum bizness whitch he has mabe got over there, but yu will no that if I do go 2 dallis it will be on account of sum bizness whitch I will hav 2 attend 2 over there & not on the account of that woman which rit me a letter. Ennyway I gess she does not reed the pappers about the new govner in Texas whitch is ternin convicts loos faster than they git in or she wood not be countin so strong on havin her husban gone 40 yeres. he is liabul 2 be back home bi now if he was sent up for a bad enuff crime so that paw & maw herd about it.

I gess yu was not lookin for me last satterdy so yu was not disapointed none when I did not show up. I wood a cum down only I had 2 go 2 humble on sum bizness & I gess yu think it was a woman mixed up in it but yu are rong agin. I went with a cupple of fellers whitch wanted me 2 go with them & I did not see but 1 woman close up & she was watin on the table in the resterant where I et & was so bussy that she did not hav no time 2 pay me no mine & did not even notis when I smole a smile at her escept she thort I wanted sum moar butter & giv it 2 me. as soon as I seen how easy she was fallin for me well I made it a point not 2 look at her no moar on account of I did not want her 2 git enny rong impressions because she was pretty yung & I do not want 2 triffle with them whitch is 2 yung. when they are old enuff 2 no better it is kinder safe 2 kid them along a little.

well I did not tell the widder where I bordes that I was goin 2 humble satterday & forgot all about it till I was back that she alwaze wants me 2 take her 2 the store on satterday evenin in mi car so I went bi a flower stoar & borten her sum flowers. so now I hav told yu about that so as yu will not misunderstand about it like she done, because all I giv her them flowers for a piece offerin 2 keep her from bein sore because I did not show up like she expeckted me 2, & she cleen forgot that she had bin expectin me 2 take her 2 the store. wimmin shore is funny hunny, aint they? well I seen slim in that store where I buys flowers talkin 2 the girl in there onct & I bet he has made sum kinder of arrangements with her 2 tell him when I buy flowers sos he can tell yu & yu will no yu did not git them. that is the kinder of a sneek he is & he shore does smell out of plase in a flower stoar.

yore lovin paul.

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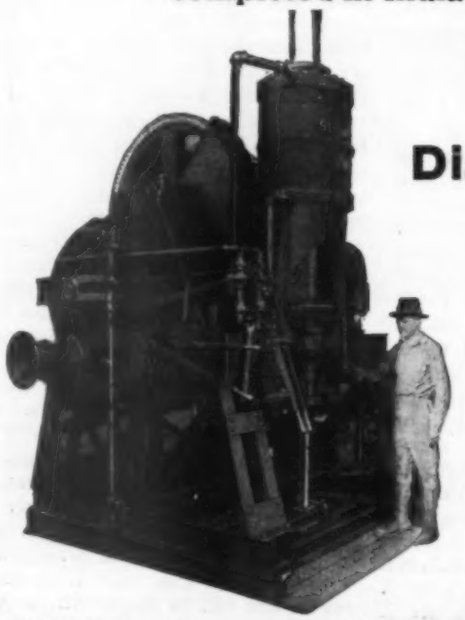
6007 FEET

That is the depth of a test well recently completed in India with the



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This was a "rescue job." Cable and Rotary reached their limit at 4400 feet. The Sullivan Drill bored the hole 1607 feet deeper and was stopped only because the necessary information had been secured. The cores gave a complete geological record.

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Believe Oil in Salt Creek Well Coming From Morrison Sand

Casper, Wyo.—An important discovery has been made by the Continental Oil Company, drilling on the southwest quarter of section 2-39-79 in the Salt Creek field, if the oil-bearing sand encountered at 2854 feet proves to be the Morrison formation. Apparently the Lakota sand was passed at a considerably shallower depth and the formation in question has all the earmarks of the Morrison sand. The sand was 10 feet thick and contained oil practically all the way through. Due to the grade of the oil found—32 Baume—some geologists are inclined to believe that the sand is not the Morrison, but the lower strata of the Lakota formation, which carries exactly this grade of oil in other wells drilled in the field. Ordinarily the Morrison sand would carry a much lower grade of oil than the Continental well produced. Indeed, it is doubtful if oil has been found in any quantities in this sand in more than one or two places in the entire Rocky Mountain region. A little gas has been found in this formation. This sand probably belongs to the Cretaceous system, although it has never been definitely classed as to series. It is a fresh-water deposit and is formed either of shale or layers of sandstone. If this newest discovery proves to be the Morrison formation, it will mean the possible recovery of much more oil from the field than previously anticipated. The well will be shot in an effort to bring about a good production.

The Producers and Refiners Corporation, in an effort to deepen its Big Sand Draw test, which has been standing at 3587 feet, drilled about 10 feet deeper and encountered water. The Wall Creek sand was found at 3685 feet and excitement was brought about by the rumor that a good light oil well had been found at 3588 feet. The hole was partially filled with oil when the well was temporarily shut in. Recently it was decided to drill deeper into the sand, the result being the encroachment of water. The string of 5 3/16 casing will be lowered and if the water is successfully shut off the test will be continued. Developments have shown that the sand is saturated on top with oil, but the bottom contains water. If the well was located considerably off the top of the dome it is altogether possible that a test nearer the apex would strike oil free from water.

The Marland Oil Company of Colorado has succeeded in completing its first well on the Notches dome, section 10-37-85, at a depth of 2775 feet. The Tensleep sand was found at 2755 and, due to water conditions in this formation, drilling was suspended after 20 feet of the sand had been penetrated. The well did not flow, but oil rose al-

most 2400 feet in the hole. A packer and tubing will be run in an effort to make the well flow. This probably will have the desired effect, as the well drilled two years ago by the Midwest Refining Company increased in production from 375 to 500 barrels daily after 2½-inch tubing and a packer had been run almost to the bottom of the hole. So great was the pressure in the Midwest well a packer smaller than the 10-inch casing had to be run. The Marland well is almost exactly the same depth as the Midwest well, indicating that it is as well located. The gravity of the oil—23 Baume—is also the same as that from the Midwest well. It is estimated that it would make about 350 barrels if put on the pump.

The Texas Company has announced that it will drill several wildcats in Wyoming this year. Big Sand Draw, Rex Lake, Allen Lake, the Wertz and the Arminto fields will all come in for their share of development. This company recently started a large development program in Wyoming, centering around its leases recently acquired in the Salt Creek field.

The New York Oil Company is making rapid progress with its Big Sand Draw-Casper gas line. A large part of the 75 miles of pipe is on the ground. The line will be welded and should be completed during the early fall months. This line will connect with the company's Poison Spider-Casper gas line.

The recent consolidation of several oil companies into the Argo Oil Company marks the end of some of the oldest operators in the Wyoming fields. The merger was brought about in an effort to centralize the operations of the several companies as well as to provide sufficient working capital. James Owen, head of the Salt Creek Consolidated Oil Company of Denver, will be chairman of the board of the new company while Max W. Ball was chosen as president. Although supposed to be an independent merger, some of the companies involved are closely related to the Midwest and Standard interests.

The Union Oil Company of California has completed its Meyer No. 1 well in the Fort Collins field at a depth of 4496 feet. The well failed to flow, but oil rose 3500 feet in the hole. This well was expected to be a flowing producer and the fact that it did not measure up to expectations is attributed to conditions perculiar only to this well. Officials of the company have expressed the opinion that the other wells completed on the structure had nothing to do with its failure to produce oil of its own initiative. The well supposedly does not touch a spot having a high gas pressure.

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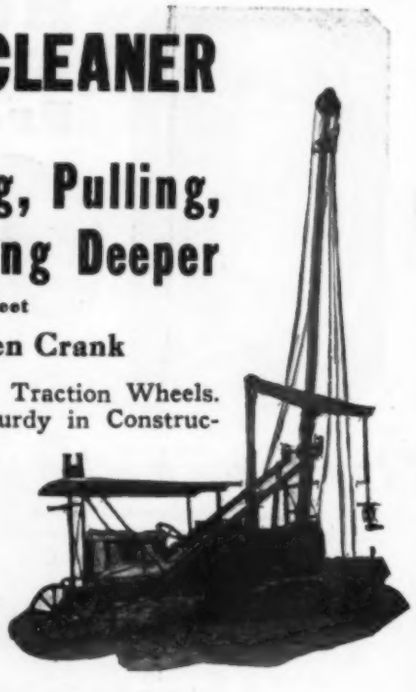

Write for Bulletin

THE TRACTION MACHINE COMPANY

NORTH BALTIMORE, OHIO

Lockhart Extension May Be New Oil Pool

Lockhart, Texas.—A new oil pool has been discovered on the 200 acres on the southern end of the Beaty and Caldwell tracts, in the Lockhart field, it is the belief of operators here. This property is under lease by Mills Bennett, Magnolia Petroleum Company, The Texas Company, and C. M. Cope.

Completion of the Cope No. 2 Beaty in the heart of this district for 1000 barrels by heads this week has furthered operators' belief that this is a distinct pool. The Texas Company finished its No. 5 for 800 barrels, a few locations north of the Cope well, proving that fairly large production will be found in the new pool. The entire 200 acres are surrounded by dry holes and non-commercial or small wells.

In this immediate district The Texas Company has four flowing wells, one completed this week, and one fair pumper. Magnolia has two good pumpers and Mills Bennett has seven fair to small producers. Cope has two wells, one the new producer, and a well completed several months ago for five barrels. These wells almost surround the district believed to be a new pool.

The present production of this pool is about 3200 barrels daily, with a probability of increasing during the next week. Several wells drilling in this section are down near the pay formations.

Bringing in this extension, or new pool, will mean that the Lockhart production has a chance of going to the 50,000-barrel mark—maybe higher.

Several wildcats are encouraging and operators are predicting a new pool within a few miles of the present field. Oil showings at shallow depths may prove a new pay stratum.

Leases Being Bought Near Cherokee County Wildcat

Nacogdoches, Texas.—Major companies and numerous independent operators have been acquiring leases and royalties in the general vicinity of the deep high-gravity oil producer owned by the Cherokee Oil & Development Company (J. A. Colliton Syndicate) in Cherokee County, about fourteen miles east of Jacksonville, in East Texas. This well is known as the Colliton wildcat, having been started in 1922 on the Mrs. P. O. Clapp land, R. R. Jowell survey, Block 84, and began showing oil in December, 1923, after drilling to the 3500-foot level, with a string of 8¼-inch casing set at 2443 feet. The depth and identity of the oil-producing formation is not known by its owners, who carried the hole to about 4300 feet with a string of 6⅝-inch casing landed on bottom. This string parted at the 3500-foot level and oil broke in shortly after the mishap. The hole now fills about 300 feet with oil testing 37-38 gravity each day when bailed regularly.

thereby giving promise of a small producer when properly completed. The owners are convinced that the oil is coming from pay below the 8¼-inch casing seat and the 3500-foot level, and are now engaged in plugging back and cementing a few feet of hole at a time as a means of locating the oil pay before starting a new test. The first well has cost its owners in excess of $250,000.

The outcome of the plugging back progress is being watched with interest by major companies, and Gulf, Magnolia, Texas, Humble, Pure, and Republic have each acquired leases in the general vicinity of the well at prices ranging from $5 to $50 per acre. This buying has taken place without creating undue attention, and indicates the faith held by major companies in something worth while later developing around the Colliton strike.

Mexican Tax of $100, Pesos, Assessed Against Each Well

Tampico, Tamps. — In accordance with a decree recently signed by President Calles an additional tax of $100, pesos, has been imposed for the drilling of oil wells. The decree was levied to provide for increased expenses which have accrued to the government for the maintenance of the Petroleum Bureau of the Department of Industry, Commerce and Labor.

When first proposed, the additional tax was to have been paid upon the filing of the application for drilling permit, but in view of the fact that in many instances companies apply for a batch of permits covering certain districts, so as to be prepared to drill in case of necessity, by the petition of the Association of Producers of Petroleum in Mexico, it was agreed that this tax only be levied upon actual drilling operations and that 30 days would be given for its payment following the spudding in of the well.

Work Started on Program For Tulsa Exposition

Tulsa, Okla.—A strong constructive program of speeches by leading American and foreign experts and authorities will make up the sessions of the International Petroleum Congress this year, according to A. W. Leonard, director of the exposition and chairman of the congress and conventions committee. Leonard and his associates have begun work on the congress program and are enthusiastic over the attractions that they hope to present to the delegates.

The first formal move in the preparation for the congress, the announcement of the personnel of the board of governors, will be made in a few days by W. G. Skelly, president of the exposition.

A frank and exhaustive discussion of the major problems of the industry, leaving the hearers with a genuine mes-

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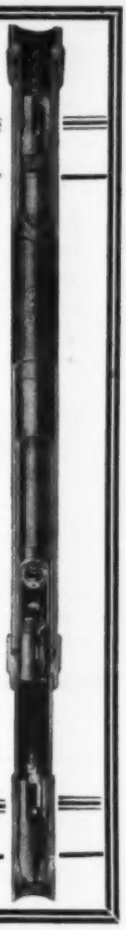

Not in the basic principle involved, but in the way it is fitted up. . . . . No particular pump ever built will meet all conditions and requirements with equal success. Almost every well demands different pumping equipment in-so-far as "fitting-up" is concerned. High, low, or no gas pressures; much or little water; heavy or light fluid; and many other things makes it necessary to analyze the individual well and fit it up accordingly . . . . . It is here that D & B serves you well. Twenty years devoted exclusively to research, experimenting and study have resulted in the ability to solve your pumping problems, and to fit your wells with pumping equipment that is by far the most satisfactory, efficient, and economical in operation.

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Depths of Well at Which Cores Were Taken	Total Feet Drilled with Core Barrel	Total Feet Recovered with Core Barrel	Per Cent Recovery
1000 to 2000 ft.	3073-ft.	2452-ft.	80
3000 ft. 3900 ft.	9849-ft.	7415 ft. 8-in.	75
4000 to 4400 ft.	4120-ft. 6-in.	2941-ft. 7-in.	71
4500 to 4900 ft.	3128-ft. 2-in.	1968-ft. 9-in.	63
5500 to 5900 ft.	129-ft.	78-ft. 6-in.	61

No allowance has been made for holes in bad condition or unfavorable to fair recoveries. The total failures were but 8 per cent.

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sage, is the aim for this congress. The committee is endeavoring to get away from the old traditions of the cut-and-dried program common to so many conventions, and to give its patrons an interesting, snappy program, worthy of close study and consideration. The presence of foreign interests at the exposition will be recognized in talks delivered by a number of the most prominent foreign delegates. The speakers for the American industry will include some of the most popular and prominent men of the business.

James Gardner, F. W. Freeborn, Harry H. Smith, Howard Bennette, A. V. Bourque, W. H. Gray, and E. B. Howard, all prominent in convention affairs and familiar with what the oil men want, form the committee working with Leonard. The same group is in charge of the arrangements for conventions of oil and gas men's associations, a number of which will meet in Tulsa during the exposition period, October 1 to 10.

The transportation committee is at work securing special railroad rates for oil men in all parts of the country who desire to attend the congress. They are confident of the co-operation of the railway systems again this year.

Mex-Pete to Start Offsets

Ebano, S. L. P.—The Mexican Petroleum Corporation (Pan American Eastern) has started operations tending to offset the production of the Marland Oil Company in Limon, which has approximately 7000 barrels of closed in production from wells Nos. 24 and 25. These wells are practically on the border separating hacienda Limon from Tulillo of the Mexican Petroleum Corporation and the latter has just received a permit from the petroleum division of the Department of Industry, Commerce and Labor, to drill La Pez No. 9-a, which virtually offsets both of the Marland producers.

If the Pan American Eastern subsidiary should be successful in this effort, it will have but very few kilometers of pipeline to construct to hook up with its present flow lines and pumping systems in Ebano, whereas the Marland will have to construct not only entire field equipment, including storage, but a flow line of 12½ miles into the Tancoco property of the Standard of New Jersey, understood to have made a contract whereby the Marland will be permitted to deliver up to 25,000 barrels of oil daily from its Limon holdings.

Mexican Seaboard Cuts Down Drilling Program

Chijol, Ver.—The Mexican Seaboard Oil Company, which has been running 28 rigs in the heavy oil district a month and completing an average of 16 wells in each 30-day period, is cutting down its drilling program so that but 15 wells will be drilling with 10 wells being completed each 30 days.

Drilling activities in Lot 5, Cacalilao, will be especially affected by this lessening of work, particularly in the interior of the property where the Seaboard can not be offset. It is the opinion of the company's geologists, that the maintenance of an extensive drilling program would be but a waste of money as wells brought in particularly within the past 30 days for commercial production are so located as to be able to draw oil from the greater part of the unexploited area. But eight rigs will be kept in operation in this part of the Seaboard's holdings as against the 18 which have been maintained. Four of these rigs will be cable tools and the others diamond drills and practically all of them will be engaged in work along the border of the property, particularly on the northwestern line in an endeavor to offset production of the Standard Oil Company of New Jersey. Two rigs will be maintained for the time being in Corcovado; one wildcatting in El Naranjo and a similar wildcat rig in Las Piedras while exploration work will be carried on in Nacata.

1000 Barrel Well and Big Gasser for Laredo Section

Laredo, Texas.—O. W. Killam No. 6 came in Friday evening, July 10, making 1000 barrels oil daily from 2055 feet. Casing was set at 2043 feet early in the week. This well is located on block 13, survey 256, in the southern extension of Henne, Winch and Farriss pool, Jim Hogg County. Casing has been set in No. 5 at 2010 feet over a sand at 2011 feet. The well is being drilled in.

Kirkpatrick-Lucas No. 1 on block 6, survey 12, Las Animas grant, came in as one of the largest gassers in South Texas, making 60,000,000 cubic feet. After working with the well for approximately an hour, the control valve was closed, but gas began to come up the hole beside the casing. The ground began to crater and it is believed that the rig will be destroyed. This well is about a mile and one-half from the proven Jim Hogg County field and opens a wide area for development. Casing was set in the well at 2003 feet over a sand encountered at 2005 feet.

The Associated Oil Company (Witherspoon) set casing in its well at 1608 feet over a sand at 1616 feet. This test is on survey 309 and east of the gas wells recently completed by the Witherspoon Oil Company and the An-

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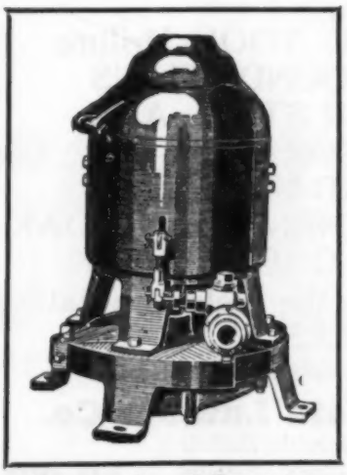

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drews pool, about twelve miles south of Mirando City.

Geologist Souther, of Laredo, made a location on survey 719, four and one-half miles north of Oilton, Webb County, for a deep test to be drilled by Souther, Grimm et al. Several tests have been drilled in the immediate vicinity.

Show Reported in Kern County, Cal., Wildcat

Los Angeles, Calif.—C. C. M. Oil Company's wildcat at Delano, in Kern County, has found an oil sand at about 3730 feet and it may make a well. This is purely wildcat territory. Shell Company No. 2 Bryant at Sealbeach has nearly 70 feet of oil sand with bottom of hole at about 5100 feet. Indications are that it will be a well.

Inglewood production today was close to 100,000 barrels but it is doubted if the production average for the week will be that high.

Mexican Tax Collection Lower

Tampico, Tamps.—Due to the decrease not only in production, but also in exports in May, revenue derived by the federal government from the petroleum industry totaled but $4,399,172.96, pesos. Of this amount $3,193,931.36, pesos, was for production taxes, with $1,205,241.60, pesos, covering taxes on oil shipped from the country.

The Elements of the Oil Well Spacing Problem

(Continued from page 40)

sumed conditions and for any number of wells.

Influence of the selling price of oil—The future revenue of an oil property must depend largely upon the selling price which the product will command at the time it is sold. This, of course, cannot be precisely foretold or even approximated on any scientific basis, but may be estimated from a study of the trend of past and present markets and from a consideration of the probable demand for petroleum and petroleum products and of the probable extent of competition with substitute commodities. The price of petroleum is fundamentally concerned with the available supply. A study of oil reserves, both above and below ground, of the trend of production in the producing areas—that is, whether it is increasing or decreasing—and of the probabilities of new discoveries or of extensions of old fields, will lead one to some conclusion concerning the available supply for the future. Price is measured by the algebraic sum of the supply and demand factors. If supply is increasing in a greater ratio than demand, prices will be depressed; and if the price is to increase, it must be the result of either increase in demand relative to supply, or decrease in supply relative to demand. These are self-

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evident economic truths that form the basis of future price estimates.

Most present-day valuations of oil properties are based upon the assumption that future oil prices will be at a somewhat higher level than has prevailed in recent years. A study of the available underground reserves and the rapidly expanding markets for petroleum products leads inevitably to this conclusion. Waning production coupled with increased demand should increase petroleum prices progressively until limited by competition with substitute products. Obviously, no method of estimation can enable one to predict minor crests and troughs in the future price curve, or temporary depressions or inflations in market conditions, but a close study of the economic factors involved will enable him to predict the general price trend.

Increase in oil values will justify closer spacing of wells. If oil were worth five dollars per barrel, it would be profitable to drill and operate wells for a much smaller daily production than would be possible for dollar oil. This prescribes a higher percentage of extraction and closer spacing of wells when oil increases in price. A proper interval between wells today may be far too great ten years hence, and we may then find it profitable to drill intermediate wells between the old locations for small productions obtained by gravity flow from sands not completely drained by the earlier wells.

The influence of competitive conditions—Where land is held in small tracts by separate interests, the obligation to offset a neighbor's boundary wells may determine a program of development and an interval between wells determined to the interests of either or both parties. The evils of town-lot drilling have been demonstrated in several fields. Aside from the detrimental influence of close spacing of wells along boundaries in the case of small tracts, it will often happen that the location of these boundary wells will in a large measure prescribe the location and number of interior wells. If we had more definite knowledge of the factors governing well-spacing, we might hope to secure more universal observance among operators of a definite program of development involving the maintenance of a proper interval between wells by common agreement.

Influence of efficiency in production—A producer who operates his wells in such a way as to secure more rapid recovery and a greater percentage of extraction of the available oil than his neighbors can afford to space his wells farther apart. Maintenance of proper fluid levels in pumping wells,[13] maintenance of pumping equipment at maximum efficiency, freedom from sand and water incursion, and freedom from interruptions in operation will have a

[13]See footnote [6].

decisive effect upon the ultimate recovery of the oil. The use of vacuum, air pressure, or water pressure as aids in securing a more complete recovery will also justify wider spacing of wells, as will prevention of the waste of natural gas by maintenance of moderate back pressures.[24]

Production records as a basis for determining well spacing—It is quite possible to demonstrate well interference and to approximate the distance apart at which wells must be spaced to avoid mutual interference, by a careful study of individual well-production records. Studies of the production graphs of offset wells spaced at varying distances apart will perhaps disclose the spacing which will be productive of the maximum amount of oil; but this is not necessarily the economic interval between wells which will result in maximum profit. The production of a well is, in itself, a measure of the composite effect of the different variables aiding and opposing movement of the oil from the sand; but without knowledge of the quantitative effect of each individual variable, we would be unable to apply the records of one field or locality in determining the proper spacing in another area under slightly different conditions. If production records are to be the basis for determination of the proper interval between wells, it is obvious that we must wait for several years after the field is first developed before we can measure the results of the early development. We should be able to prescribe the proper spacing of wells during the early years of development before the results of the early wells can be made available. Postmortems on what should have been the spacing in a particular field are interesting, but of little practical value.

Conclusions

The conclusions reached in the foregoing discussion are summarized in Table I, which indicates the qualitative effect of each of the several variables on the spacing of wells. To determine the composite effect of all of these variables in a particular field or under a given set of conditions is a difficult task; and yet it can be accomplished if we have sufficient data on the quantitative effect of each variable. The necessary information can only be secured by an organized program of research and field study. Some of the factors can best be determined by laboratory experimentation in which the several variables can be kept under close control and the results of variation in individual factors definitely measured. Other factors require an extensive study of costs and statistical records. Some must be approached from the field-production records.

Universities and research institutions will be able to assist in certain phases

[24]See footnote [3].

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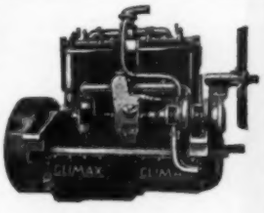

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(4) Comparative strength of Welded, Riveted and Bolted Construction.

(5) When to use a Welded, a Riveted, a Bolted or a Wood tank.

(6) Effective means of preventing evaporation.

(6-a) Comparative effectiveness of Welded, Riveted, Bolted and Wood tanks in conservation of oil.

(6-b) Effect of pressure in tanks as means of conservation.

(6-c) Color of paint to use on tanks.

(7) Comparison of fire hazard with Welded, Riveted, Bolted and Wood tanks.

(8) Comparative cost of Welded, Riveted, Bolted and Wood tanks.

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SQUEAKS FROM THE BULL WHEEL

Some poet, or maybe there were several of them, indited lines to a sentinel who went asleep on his post and dreamed of his childhood's days. As we remember that song the greatest penalty was that soon he heard the call to arms and awoke to the stern realities of the horrors of war.

But that was war. You couldn't expect such pathos on an oil lease where the hiss of steam and the booming of gas engines vie with the clank and squeak of pull rods in making sleep a slim possibility unless induced by great fatigue. Such a place is no place for sleeping, or at least it wood seem so to the casual visitor, and that is what the big boss is when he occasionally makes a field trip. Such being the case makes possible this tale.

It happened at Humble. Word came out that some of the "big boys" from the Houston office would make a visit soon. It was an unusual occasion and due warning was given that it might be possible that for once during the year the lease would be cleaned up fit for a photographer. This is a democratic country and more than ordinary democratic industry, but all the same the occasion was most like a visit from the Prince of Wales to his ranch in Canada. Everything on the lease is supposed to have a place, and in preparation for the heralded visit, everything was supposed to go in that place. And be it remembered that Humble has been an oil field for many years. Lots of wells have long been abandoned, equipment worn out and junked—a situation well calculated to make getting in shape for a visit from a high official a real job. Anyway the whole crew had been putting in extra hours cleaning up.

And among the most zealous of these workers was a pumper who had been on the job for seven years. Everything had been put in shape for the visit, and nothing was left but to wait, and the waiting extended beyond the expected time; so much so that the weary pumper thought there was opportunity to recoup a little of the lost sleep and recover from the fatigue of the extra exertions of the clean-up. Improvising a bed he was soon knocking off the proverbial forty winks. And thus the inspection party found him.

The conversation was facetious. Some one in the party wanted to know what kind of bed he preferred and he, properly abashed in the presence of the all-powerful he had never seen before, answered that he was not particular. And then the biggest boss of them all suggested that a time check would be a good pillow.

Fellow workers say that he was a good worker—ever faithful. Of course the man who suggested the time check didn't know about that and had no time to investigate.

What is seven years?

Two street cleaners were discussing a comrade who had died the day before.

"Bill certainly was a good sweeper," said the one.

"Ye-es," conceded the other, thoughtfully, "but don't you think he was a little weak around the lamp posts?"

Soda Fountain Subtleties

Young Lady: "What kind of sandwiches do you have?"

Soda Clerk: "Ham bread, ham roll, cheese on bread, cheese on roll, chicken salad on bread, tongue roll, tongue on bread, egg salad roll and bread, tomato on bread, combination salad rolls, hot dogs."

Young Lady: "All right; bring me a dish of chocolate ice cream."

Notice in Kansas paper: "Positively no more baptizing on my pasture. Twice in the last two months my gate has been left open by Christian people, and I can't afford to chase cattle all over the country just to save a few sinners."—Boston Transcript.

Al, the tenderfoot, invested $50 in a wildcat well.

On being shown a partial log of the well, he looked it over with great interest. Nearing the bottom, he looked up, startled, and remarked:

"H—l fire! Here's more gumbo!"

The Toolies 23rd Spasm

The driller is my superior; I fire the pot.

He maketh me to lie down in wet places. while he reclineth himself upon the lazy bench.

He leadeth me beside the still waters, and showeth me the one arm John.

Yea, though I walk through the pastures at midnight and hold my breath, I fear not the devil, for he is with me. His bull and his laugh, they comfort me.

He bawleth me out in the presence of my contractor. He smeareth my jumper with oil. My pot boileth over.

Surely burnt bits, melted soft plugs and cuss words will follow me all the days of my life and I will sleep in the dog house forever.—Bush Wah.

Teacher: "Johnny, will you define the genders?"

Johnny: "There are two genders — masculine and feminine Masculine is divided into two parts, temperate and intemperate, and feminine into torrid and frigid."—Psychology.

The prosecuting attorney was examining a negro witness.

"Now, Mose," he said, "tell us what you know about this fight."

"Well, boss," began Mose, "I think—"

"I don't want to know what you think. Tell us what you know."

"I think—"

"I told you not to tell us what you think."

"But, boss," said Mose, apologetically, "I ain't no lawyer. I can't talk without thinking."—Everybody's.

Visitor: "So you are my wife's painting teacher. How does she impress you as a student?"

Artist: "I find her very apt to say the least."

"That's remarkable. I find her very apt to say the most."

"How long you in jail fo', Moses?"

"Two weeks."

"What am de cha'ge?"

"No cha'ge, everything am free."

"Ah mean what has you did?"

"Done shot mah wife."

"You all killed yo' wife and only in jail fo' two weeks?"

"Dat's all—then Ah gets hung."—Penn State Froth.

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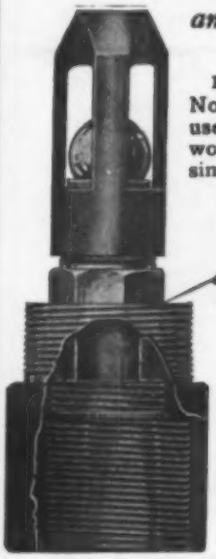

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15,000 acres, Loving County; 10-year lease. 10c rental. On line with Artesia, New Mexico, production. Will allow time for geological inspection.

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of this work. The problem is one that can well be worked out by the technical staffs of any of our larger oil companies with their great resources, excellent research facilities, and ready access to field records; but if prosecuted in this way the results are not made public, and there must be great duplication of effort by many different companies if our oil fields, considered as a whole, are to be intelligently developed. It would seem to be a problem of the type that could best be studied by some public or semi-public institution such as the United States Bureau of Mines, or by some research institution adequately financed, say, by the American Petroleum Institute.

TABLE I

Qualitative Effect of Various Economic and Physical Factors on the Spacing of Wells

Increase In	Spacing of Wells
Gas pressure	Increased
Gravity pressure	Increased
Edgewater pressure	Increased
Porosity of reservoir rock	Decreased
Grain size of sand	Increased
Oil viscosity	Decreased
Diameter of wells	Increased
Depth of productive sand	*
Thickness of productive sand	Decreased
Dip of structure	*
Number of productive sands or zones	Decreased
Discount of interest rate on deferred production	Decreased
Interest on capital investment	Increased
Cost of development	Increased
Cost of operation	Increased
Selling price of oil	Decreased
Size of property	Increased
Efficiency of production	Increased

The work might be financed in part by our state governments. In California, for example, the state receives, as its share of bonuses and royalties paid to the national government under the operation of the Mineral Land Leasing Law, an annual sum which at present ranges between $200,000 and $300,000. The reinvestment by the state of a small part of this sum in research in the industry responsible for its production would be a thoroughly justifiable proposition, particularly since the investment would in all probability result in higher ultimate returns in royalty payments.

As an outcome of such a study, we might hope to have made available to the industry as a whole a simple and direct means of determining the economic interval between wells for any prescribed conditions; or, perhaps, definite recommendations for the spacing of wells in each of the different fields of the United States. The immediate result of such an investigation would be a substantial increase in profits on oil production and a more efficient recovery of our remaining petroleum reserves. It is a problem worthy of the serious attention of the entire oil-producing industry and of the best efforts of every individual sincerely interested in its welfare.

*Items marked with an asterisk may prescribe either decreased or increased spacing, depending upon which of two considerations related to the variable named is regarded as most important.

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Wichita Falls, Texas

PATENTS
Patents Obtained, Trade Marks, Patent Causes
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Formerly Assistant Examiner
Andrews, Streetman, Logan and Mobley
12th Floor Union N. Bk., Houston, Texas
United States Patent Office

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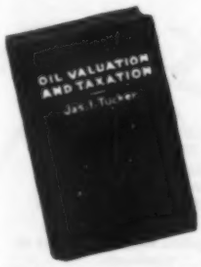

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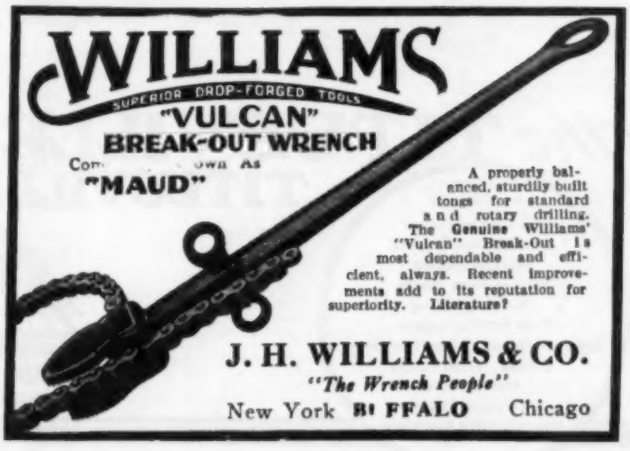

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Gardner Governor Co.
Hope Engineering & Supply Co.
Southern Engine and Pump Co.
Waukesha Motor Co.

Air Lift Pumping Equipment—
Gardner Governor Co.
Sullivan Machinery Co.

Asbestos Roofing—
Johns-Manville, Inc.

Attorneys
Hirsch & Hannay
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Balls and Seats—
Continental Supply Co.
Norris Bros.
Northrup Equipment Company
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Band Wheels—
Continental Supply Co.
Emsco Steel Products Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.

Bell Nipples—
The Cunningham Co.

Belting—
Bridgeport Machine Co.
Continental Supply Co.
Frick-Reid Supply Co.
Gustin Bacon Manufacturing Co.
International Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Stanley Belting Corp.

Bit Steel—
Central Steel Co.

Black Diamonds—
R. S. Patrick

Boilers—
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The Brownell Co.
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International Supply Co.
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Star Drilling Machine Co.
Titusville Iron Works Co.
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See Oil Field Supplies and Tanks

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The Lunkenheimer Company

Boiler Tubes—
The Tyler Tube & Pipe Co.

Blowout Preventer—
Baash-Ross Tool Co.
Cameron Iron Works
Continental Supply Co.
Regan Forge & Engineering Co.

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Continental Supply Co.
Gaso Pump & Burner Mfg. Co.
Gould Burner Co.
Regan Forge & Engineering Co.

Bull Wheels—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
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Calf Wheels—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.

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R. S. Patrick

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Regan Forge & Engineering Co.
Republic Supply Co.
Superior Tube Co.

Casing Shoes—
Baker Casing Shoe Co.
Bridgeport Machine Co.
Continental Supply Co.
The National Supply Cos.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.
Republic Supply Co.

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The Sullivan Co.

Cement Head—
MacClatchie Mfg. Co.

Chain Blocks—
Yale & Towne Mfg. Co.

Charcoal Iron Boiler Tubes—
The Tyler Tube & Pipe Co.

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Ward Chemical Co.

Collapsible Rotary Bits—
O. M. Carter

Control Heads—
Continental Supply Co.
Southern Brass Mfg. & Plating Co.

Conservation—
Westcott and Greis

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Elliott Core Drilling Co.
Spengler Core Drilling Co.

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Continental Supply Co.
Gardner Governor Co.
Hope Engineering & Supply Co.
Sullivan Machinery Co.
United Iron Works, Inc.

Cordage—
Continental Supply Co.
The National Supply Cos.
Republic Supply Co.

Crown Blocks—
Baash-Ross Tool Co.
Continental Supply Co.
International Derrick & Equipment Co.
Lufkin Foundry & Machine Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.
Superior Tube Co.

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Harrisburg Pipe & Pipe Bending Co.
Superior Tube Company

Cocks Drain—
The Lunkenheimer Company

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Petroleum Rectifying Co.

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Lee C. Moore & Co.
National Turnbuckle Derrick Co.
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Robertson-McDonald Lumber Co.
Superior Tube Company

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R. S. Patrick
Sullivan Machinery Co.

Diamond Drilling Carbon—
R. S. Patrick

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Draw Works—
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Lufkin Foundry & Machine Co.

Drilling Cables—
American Cable Co.
Bridgeport Machine Co.
Continental Supply Co.
Frick-Reid Supply Co.
The National Supply Cos.
Peden Iron & Steel Co.
Regan Forge & Engineering Co.
Republic Supply Co.
Star Drilling Machine Co.
Wickwire Spencer Steel Corp.

Drill Pipe Slips—
Baash-Ross Tool Co.
Continental Supply Co.

Drilling Machines—
Bridgeport Machine Co.
Continental Supply Co.
Parkersburg Rig & Reel Co.
Star Drilling Machine Co.

Drill Collars—
Baash-Ross Tool Co.
Continental Supply Co.

Drill Pipe Cutting—
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Houston Engineers, Inc.

Drilling Tools—
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Baash-Ross Tool Co.
Continental Supply Co.

Drilling, Diamonds for—
R. S. Patrick

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Frick-Reid Supply Co.
Republic Supply Co.
Reading Iron Co.

Drilling Equipment—
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Continental Supply Co.
Republic Supply Co.
Star Drilling Machine Co.

Drive Pipe—
Continental Supply Co.
Republic Supply Co.
Reading Iron Co.
Superior Tube Company

Electrical Equipment—
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Westinghouse Elec. & Mfg. Co.

Elevators—
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Continental Supply Co.
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Wilson & Willard Mfg. Co.

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General Electric Company

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Hope Engineering & Supply Co.
Spence Machine Co.
The Pattin Bros. Co.
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Waukesha Motor Co.

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Western Machinery Co.

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Bessemer Gas Engine Co.
Bridgeport Machine Co.
Climax Engineering Co.
Continental Supply Co.
The Brownell Co.
De La Vergne Machine Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hope Engineering Co.
Lucey Mfg. Corp.
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The National Supply Cos.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Peden Iron & Steel Co.
Republic Supply Co.
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Spence Machine Co.
Southern Engine & Pump Co.
Titusville Iron Works
Waukesha Motor Company
Western Machinery Co.

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Oil Conservation Engineering Co.
D. T. Ring
Westcott and Greis

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Oil Conservation Engineering Co.

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Regan Forge & Engineering Co.

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Dunn Mfg. Co.

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Sinclair Refining Co.

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Hope Engineering & Supply Co.
Sullivan Machinery Co.

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Gauges—
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Oil Conservation Engineering Co.
Westcott and Greis

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S. M. Jones Co.
Waukesha Motor Co.

Gas Generators—
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Continental Supply Co.
Lorraine Corp.
Smith Separator Co.
Trumble Gas Trap Co.

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Continental Supply Co.
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Parkersburg Rig & Reel Co.
Petroleum Iron Works Co., The

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Reading Iron Co.

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Edwin B. Hopkins
Foster & Reiter
Heath M. Robinson
Price, W. Armstrong

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J. P. Ratigan

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Hope Engineering & Supply Co.

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Hose—
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Gustin Bacon Manufacturing Co.

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Crain Ready-Cut House Co.

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Superior Tube Company

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Republic Supply Co.
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Thes Lunkenheimer Company

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Meters—
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Westcott and Greis

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H. Rickman

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Erle P. Halliburton
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Pelican Well Tool & Supply Co.
Petroleum Iron Works Co., The
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Regan Forge & Engineering Co.
Robinson Packer Co.
Smith Separator Co.
Southern Brass Mfg. & Plating Co.
Superior Tube Co.
United Iron Works, Inc.
J. H. Williams & Co.

Oil Well Casing—
Continental Supply Co.
Frick-Reid Supply Co.
Republic Supply Co.
Superior Tube Company

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Erle P. Halliburton
Oklahoma Portland Cement Co.

Oil Well Reamers—
Jones Oil Well Reamer Co.

Oil Well Shooting—
Eastern Torpedo Company
U. S. Torpedo Co.
Zero Hour Torpedo Co.

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Continental Supply Co.
LeBus Rotary Tool Works

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Layne & Bowler
Baldasco Packer Co.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.

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D. F. Connolly Agency
Gustin Bacon Manufacturing Co.
Frick-Reid Supply Co.
The National Supply Cos.
Peden Iron & Steel Co.
Pelican Well Tool & Supply Co.
Republic Supply Co.

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Continental Supply Co.
Peden Iron & Steel Co.

Panel Boards—
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Westinghouse Elec. & Mfg. Co.

Pipe—
A. M. Byers Co.
Continental Supply Co.
Frick-Reid Supply Co.
Harrisburg Pipe & Pipe Bending Co.
International Supply Co.
The National Supply Cos.
Oil Well Supply Co.
Peden Iron & Steel Co.
Reading Iron Co.
Republic Supply Co.
Superior Tube Company

Patents—
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Jack A. Schley
Jesse R. Stone

Pipe Grips—
Continental Supply Co.

Pipe Insulation—
Johns-Manville, Inc.

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Buckeye Traction Ditcher Co.

Pipe Threading Machines—
Jarecki Mfg. Company
Standard Engineering Co.

Pipe Vises—
J. H. Williams & Co.

Pipe Wrenches—
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Dunn Mfg. Co.
The Gulberson Corp.
Trimont Mfg. Co.
LeBus Rotary Tool Works
Republic Supply Co.
J. H. Williams & Co.
Wickwire Spencer Steel Corp.

Portable Buildings—
Butler Manufacturing Co.
International Derrick & Equipment Co.

Portable Drilling Rigs—
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Continental Supply Co.
Lee C. Moore & Co.
Parkersburg Rig & Reel Co.
The National Supply Cos.
Waukesha Motor Co.

Pulleys—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.

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Continental Supply Co.
Iron King Mfg. Co.

Pumps—
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Continental Supply Co.
D. & B. Pump & Sup. Co.
C. C. Fetty
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Goulds Manufacturing Co.
Jarecki Mfg. Company
Lucey Manufacturing Corp.
National Transit Pump & Machine Co.
Northrup Equipment Company
Oil Well Supply Co.
Pelican Well Tool & Supply Co.
Republic Supply Co.
Southern Engine & Pump Co.
Texas Oil Pump Co.
United Iron Works, Inc.
Waukesha Motor Co.

Portable Compressors—
Continental Supply Co.
Sullivan Machinery Co.

Pumping Engines—
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McIntosh & Seymour Corp.

Pumping Equipment—
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Northrup Equipment Company
Shaffer Specialty Co.

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C. C. Fetty
Frick-Reid Supply Co.
International Supply Co.
Jarecki Mfg. Company
Jensen Bros. Mfg. Co.
Spence Machine Co.

Regulators—
Westcott and Greis

Refined Products—
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Humble Oil & Refining Co.
Magnolia Petroleum Co.
Sinclair Refining Co.
Texas Co.

Recorders—
Fort Worth Laboratories

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Butler Mfg. Co.
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Oil Conservation Engineering Co.
Petroleum Iron Works Co., The
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Titusville Iron Works
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Westcott and Greis
Wyatt Metal & Boiler Works

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International Supply Co.
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Oil Well Supply Co
Parkersburg Rig & Reel Co.
Republic Supply Co.

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International Supply Co.

Rotary Rock Bits—
Continental Supply Co.
Hughes Tool Co.
Reed Roller Bit Co.

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Continental Supply Co.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.
Republic Supply Co.

Safety Casing Clamps—
Shaffer Specialty Co.

Sand Reel Supports—
Shaffer Specialty Co.

Separators—
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Butler Mfg. Co.
Continental Supply Co.
Lorraine Corp.
Smith Separator Co.
Trumble Gas Traps

Specialty Manufacturers—
Shaffer Specialty Co.

Steel Bull Wheels —
Bradford Rig & Reel Co.
McIntosh & Seymour Corp.

Structural Steel—
Butler Mfg. Co.
United Iron Works, Inc.

Steel Derricks—
Continental Supply Co.
Emsco Steel Products Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.
Superior Tube Company

Steel Crown Blocks—
Continental Supply Co.
International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.
Parkersburg Rig & Reel Co.
Superior Tube Co.

Steel Storage Tanks—
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Butler Mfg. Co.
Continental Supply Co.
Petroleum Iron Works Co., The

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Strainers—
Continental Supply Co.
Emsco Steel Products Co.
Howard Smith Company
Layne & Bowler Co.
J. H. McEvoy & Co.
Pelican Well Tool & Supply Co.

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Continental Supply Co.

Sucker Rod Elevators—
The Cunningham Co.

Sucker Rod Hangers—
Lorraine Corp.
Robinson Tool Co.

Sucker Rod Hooks—
The Cunningham Co.

Sucker Rod Sockets—
Baird Supply Co.
Brown Welding & Machine Co.
Continental Supply Co.
The Cunningham Co.
Shaffer Specialty Co.
Western Supply Co.

Sucker Rods—
Axelson Machine Co.
Continental Supply Co.
Columbus Sucker Rod Co.
D. & B. Pump & Sup. Co.
Dunn Mfg. Co.
Frick-Reid Supply Co.
S. M. Jones Co.
The National Supply Cos.
Oil Well Supply Co.
J. P. Ratigan
Republic Supply Co.

Swabs—
Continental Supply Co.
The Cunningham Co.
Shaffer Specialty Co.

Tank Bolts—
Continental Supply Co.

Tanks—
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Butler Mfg. Co.
Black, Sivalls & Bryson
Continental Supply Co.
The Brownell Co.
Kansas City Struct. Steel Co.
Maloney Tank Co.
Parkersburg Rig & Reel Co.
Petroleum Iron Works Co., The
United Iron Works
Wyatt Metal & Boiler Works

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Johns-Manville, Inc.
Oil Conservation Engineering Co.
Parkersburg Rig & Reel Co.
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Tank Insulation—
Johns-Manville, Inc.

Tank Roofs—
Johns-Manville, Inc.

Temper Screws—
Burns Tool Co.

Thermometers—
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Fort Worth Laboratories

Timbers—
Robertson-McDonald Lumber Co.

Tongs—
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Continental Supply Co.
Dunn Mfg. Co.
Guiberson Corp.
Howard Smith Company
LeBus Rotary Tool Works
Pelican Well Tool & Supply Co.
J. H. Williams & Co.
Wilson & Willard Mfg. Co.

Tool Joints—
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Bridgeport Machine Co.
Continental Supply Co.
Emsco Steel Products Co.
Hughes Tool Co.
Pelican Well Tool & Sup. Co.
Regan Forge & Engineering Co.
Republic Supply Co.

Tools (Fishing and Drilling)—
Acme Fishing Tool Co.
Bridgeport Machine Co.
Brown Welding & Machine Co.
Continental Supply Co.
Frick-Reid Supply Co.
Houston Engineers, Inc.
Hughes Tool Co.
International Supply Co.
Oil Well Supply Co.
Pecan Iron & Steel Co.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.
Republic Supply Co.
Star Drilling Machine Co.
Sullivan Machinery Co.

Toothless Slips—
Le Bus Rotary Tool Works

Tractor Winch—
C. F. Camp Co.
Rock Island Plow Co.
Twin City Co.

Traveling Blocks—
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Continental Supply Co.
Lufkin Foundry & Machine Co.
Regan Forge & Engineering Co.

Tret-O-Lite—
W. S. Barnickel & Co.

Tubing Catcher—
Continental Supply Co.
Dunn Mfg. Corp.
Guiberson Corp.

Tubing Lines—
Continental Supply Co.

Tubing—
Continental Supply Co.
Republic Supply Co.
Reading Iron Co.

Underreamers—
Bridgeport Machine Co.
Continental Supply Co.
Wilson & Willard Mfg. Co.

Vacuum Pumps—
Continental Supply Co.
Sullivan Machinery Co.

Valves—
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Continental Supply Co.
Darling Valve & Mfg. Co.
The Charles N. Hough Mfg. Co.
Ludlow Valve Mfg. Co.
The Lunkenheimer Company
Norris Bros.
Northrup Equipment Company
Oil Conservation Engineering Co.
The Wm. Powell Co.
Smith Separator Co.
Sour Lake Machine Co.
Southren Brass Mfg. & Plating Co.
Texas Oil Pump Co.
Westcott Valve Mfg. Co.

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The Lunkenheimer Company

Valves and Fittings—
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Jarecki Mfg. Company
Ludlow Valve Mfg. Co.
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The National Supply Cos.
Pecan Iron & Steel Co.
The Wm. Powell Co.
Pittsburgh Reinforced Brazing & Machine Co.
Republic Supply Co.
United Iron Works

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International Derrick & Equipment Co.
Lee C. Moore & Co., Inc.

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Continental Supply Co.

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Continental Supply Co.
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Howard Smith Company
Northrup Engineering Company
Republic Supply Co.
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Southern Brass Mfg. & Plating Co.
Texas Oil Pump Co.

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Continental Supply Co.
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Continental Supply Co.
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Ward Chemical Company

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American Cable Co.
Bridgeport Machine Co.
Continental Supply Co.
International Supply Co.
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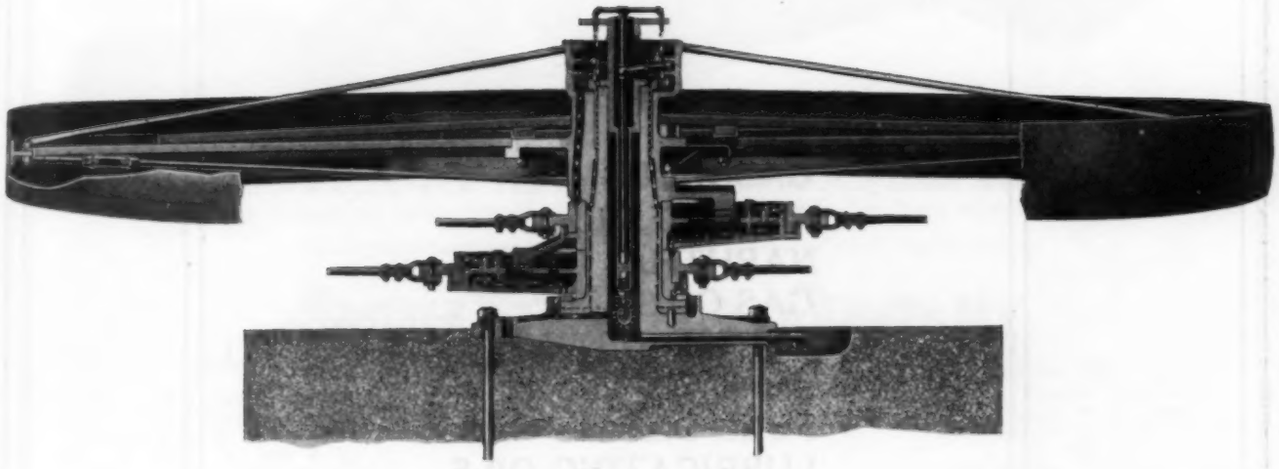

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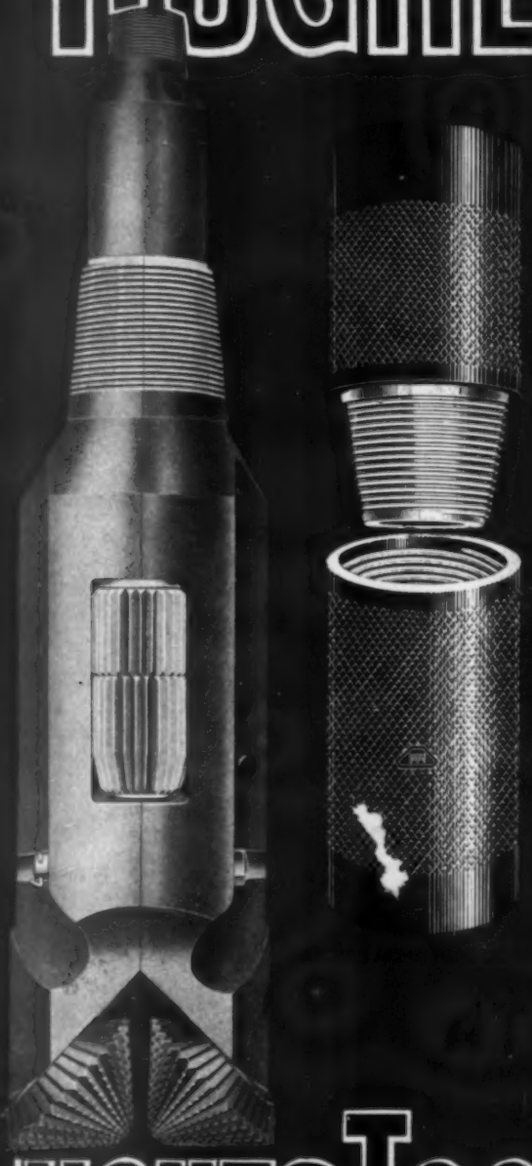

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